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ABSTRACT

The U.S. labor market for new graduates of two- and four-year colleges was studied to determine the impact of the large increase in output of graduates that occurred in the 1950s and 1960s. The study was based primarily on published research evidence and available statistical material, supplemented by a small number of interviews with experts in the United States and United Kingdom. It was discovered that, although the economic returns of a college education and growth rate of starting salaries have declined since the early 1970s, the advantages of a college degree remain substantial in terms of relative earnings, higher labor force participation rates, lower unemployment rates, and better access to higher-level occupations. The following were among the study findings identified as being particularly relevant for the United Kingdom: (1) despite the increase in the number of new graduates in the United States, higher education remains greatly valued; (2) employers are attaching increased importance to work experience when recruiting graduates and are looking for a range of personal and core skills in applicants; and (3) the concept of continuing education, whereby education is viewed as a lifelong process, is becoming increasingly prevalent. (Contains 40 tables/figures and 174 references.) (MN)

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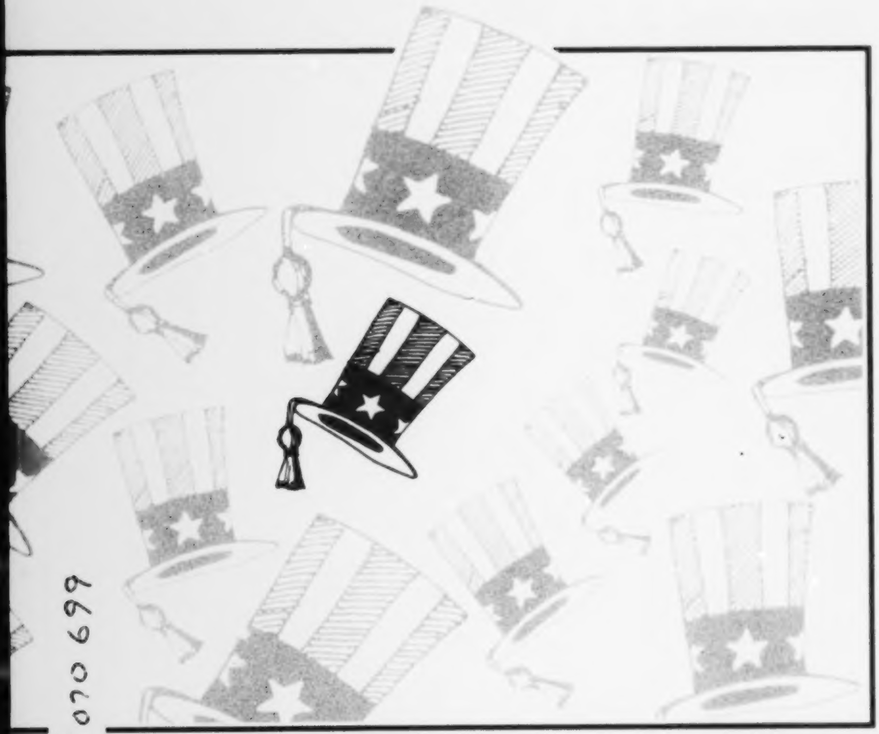

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Executive Summary

This report assesses the impact of a rapid rise in the supply of graduates on the labour market. The UK higher education system has expanded very rapidly in the past five years and the impact of this increase has yet to be fully assessed. Nevertheless, recent growth in the supply of graduates has been associated with a period of rising rates of new graduate unemployment and evidence that graduates are entering a broader range of jobs, including those not traditionally requiring a degree.

In order to understand the potential longer term effects of growth in graduate output, the Employment Department commissioned this study from IMS on the US labour market for new graduates. The US has a long history of relatively open access to post-secondary education. Rapid rises in graduate output in the past have taken it towards a mass higher education system. This could provide some insight into the kinds of changes we can expect in the UK.

The study was undertaken between September 1993 and January 1994. It is based mainly on published research evidence and available statistical material, supplemented by a small number of interviews with experts in the US and the UK.

The aim of the study was to inform the UK policy debate on the graduate labour market. It is important to note, however, that the US and UK systems of higher education are very different. While access is far broader in the US — 60 per cent of high school graduates go on to post-secondary education — this is associated with higher rates of stopping out (a temporary break from education) and dropping out (leaving education and not returning). That is, access does not equate to outcomes: only about a fifth of US students graduating from high school in 1980 had obtained a bachelors degree by 1986.

The US labour market for graduates

The main growth of the US higher education system occurred in the 1950s and 1960s, with the number of degrees awarded almost doubling over the period. This expansion took place within a context of rapid economic growth and the labour market for new graduates remained buoyant until the end of the 1960s. Beginning in the 1970s, the effects of continued increases in the supply of graduates at a time of more limited economic growth began to emerge. The two main, long term trends in the US labour market for new graduates have been:

- static real starting salaries
- an increase in the proportion of graduates defined as underutilised

After increasing steadily throughout the 1960s, real starting salaries for new graduates peaked in 1969 at $25,288 per year (in 1990 $). Since then, they have fluctuated around a slightly downward trend and in 1990 were at a level 16 per cent lower than in 1969 ($21,319).

The US Bureau of Labor Statistics defines as underutilised graduates working in the following occupations: retail sales, administrative support (including clerical work), service, and craft, operative and labourer. Under this definition, the proportion of underutilised graduates has increased from 11 per cent in 1969 to 20 per cent in 1990 and by 2005 this proportion is projected to reach 30 per cent.

The main issues surrounding these figures concern changes in the content of jobs and the potential value added by a graduate employee. First, jobs not traditionally viewed as requiring a degree may have changed in content, through, for example, technological developments, such that graduate level skills are now either required or preferred. Second, the value added by a graduates working in these jobs may be effectively changing the skill levels usually associated with them and therefore the level of education necessary to perform well.

In addition to these established trends, two other factors have more recently emerged in the US labour market for new graduates. First, the early 1990s have been characterised by an increase in the time it takes for many graduates to secure the kind of work they are looking for. This may relate to the reduction in recruitment by large, traditional recruiters which is encouraging graduates to look for work in smaller and medium sized companies. These companies are less likely to follow traditional graduate recruitment methods and students may have to be more individually proactive in developing their own contacts with them. This process requires greater input in terms of time from the student and may therefore delay their progress in finding work. In addition, anecdotal evidence suggests that more students are taking interim employment, which may, or may not, be related to their chosen career, before moving into a position better suited to their qualifications. This again will delay a graduate's entry into their preferred occupation.

A second, more recent, trend is more selective recruitment practices. Many employers have reduced the number of campus visits and are increasingly looking to recruit graduates with a good academic record and work experience. In particular, they are seeking graduates who have worked for them in the past either through an internship (a short term of employment with a significant training element) or a co-operative education programme (a form of work experience for which students gain academic credit and which therefore contributes toward their degree).

While these trends suggest that the labour market has become more difficult for new US graduates, they still enjoy a distinct labour market advantage over their less well educated counterparts. The average monthly income of those with four or more years of college is about 60 per cent higher than that of their counterparts who left education at 18. Other indicators of labour market success, for example unemployment and labour force participation rates, confirm that US graduates continue to do significantly better in the labour market than those with lower levels of education. Indeed, access to many professional and managerial positions is almost dependent upon a bachelors degree and progress within many of these occupations depends on gaining postgraduate qualifications.

Overall, while it has become all the more necessary for individuals seeking good career-oriented job prospects to have a bachelor's degree, such qualifications are no longer sufficient to guarantee access to a good job. Employers are looking more closely at the ability of graduates to undertake the jobs they are seeking to fill and previous experience with an employer is becoming one of the most effective ways of demonstrating such ability.

Mature graduates

The study also looked at the position of mature students in the US. For this group, there were clear benefits associated with gaining a degree including:

- increased labour force participation, especially among women
- a shift into more high level occupations
- changes in on-the-job benefits such as increased pay, more responsibility and higher status.

It was, however, difficult to assess the labour market experiences of mature graduates relative to younger students. Interviews with experts in the US suggested that in some cases the increased demand for graduates with work experience could favour mature students, who were more likely to be able to demonstrate prior employment. Less optimistically, mature graduates were not immune from the age discrimination other older workers faced.

Sub-degree graduates

We also looked at the labour market position of graduates from sub-degree level courses. Those with some post-secondary qualifications but no bachelors degree have a more favourable labour market position than high school graduates with no further education. The main labour market advantages of those with sub-degree qualifications relative to high school graduates were access to higher status occupations, for example, technical occupations, and higher average salaries.

Lessons for the UK

A number of lessons for the UK emerged from this analysis of the US labour market for new graduates. They include:

- The advantages of post-secondary qualifications — despite the increasing difficulties faced by current US graduates education remains highly valued and the evidence clearly shows that sub-degree, bachelors degree and postgraduate qualifications confer a significant labour market advantage.
- In the UK we are already seeing evidence of graduates entering jobs not traditionally requiring a degree. A similar trend has been developing in the US for the past two decades and is expected to continue. This suggests that the labour market expectations of new graduates may have to be revised along with our definition of what constitutes a 'graduate job'. A similar point relates to new sources of employment and the decline in recruitment among the traditional employers of graduates. Graduates may need to expand their job search activities to include small and medium sized firms. As a result the job search process itself may have to change, with graduates relying more on speculative applications and personal contacts than employer campus visits.
- In a more competitive graduate labour market, applicants with demonstrated work experience and a range of personal and core skills have an advantage. If employers in the UK also turn increasingly to those graduates with these qualities, UK Careers Services may need to become more involved in organising internships and encouraging students to plan their entry into the labour market soon after they begin their studies. In addition, UK higher education institutions may need to begin to assess more explicitly what students learn at university, in terms of both their academic knowledge and a range of the personal and core skills increasingly demanded by employers.
- In the US, relatively open access to higher education and the varied paths students can follow toward a degree have been associated with high rates of stopping out and dropping out. While this may be an acceptable cost, UK institutions and employers need to recognise that increases in the numbers of students may lead to more varied patterns of participation in, and completion of, higher education programmes.

1. Introduction

1.1 Background

The UK higher education system has expanded very rapidly in the past few years, with the number of students entering higher education rising by over 50 per cent since 1986. The impact of this increase on the UK graduate labour market has yet to be gauged. We are already seeing, however, rising rates of new graduate unemployment and there are indications that graduates are entering a broader range of jobs, including those not traditionally requiring a degree.

In order to evaluate the potential impact of a rapid rise in the supply of graduates, the Employment Department commissioned this IMS study on the labour market effect of moving toward a mass higher education system in the United States. The US has a long history of relatively open access to post-secondary education and a high proportion of its workforce is qualified to degree and sub-degree level.

Access to higher education in the US was facilitated by a variety of federal programmes and the federal government remains a major source of funds. The US system is, however, very much demand led with student demand for higher education determining enrolment levels rather than national or state financial allocations.

The general approach to the graduate labour market is very much based on laissez-faire assumptions. While there are concerns about having a sufficient supply of highly educated labour, especially in scientific and technical fields, neither state nor federal governments have sought to influence directly the kinds of subjects studied or the number of students studying them. Such influence as has been exerted has been directed at encouraging students to enter particular disciplines by providing additional financial assistance rather than, for example, restricting the number of places in subjects with a perceived over-supply.

A similar situation exists with regard to the demand for graduate labour. At times of excess supply relative to demand, the US state and federal authorities have not sought to stimulate demand or provide specific programmes for unemployed graduates. It has been left up to institutions and, in particular, students to resolve their own difficulties. This must partially reflect the relatively restricted welfare state provision for graduates (and other sections of the population), most of whom would not be eligible for local, state or federal aid if they found themselves unemployed or on a low income.

1.2 Research aims and method

The main objective of the project was to provide the Employment Department with an accurate and detailed picture of the US labour market for new graduates, including analysis of the supply of graduates to the market and employer demand for them. The study collated information from a range of sources on the following topics:

- The nature of the historical, current and projected US graduate labour market.
- Mature new graduates.
- Sub-degree qualifications.
- Employers' views of new graduates.
- The nature of US degrees and how the US system differs from the current UK system.

The review was undertaken between September 1993 and January 1994. It was primarily a desk-based study involving collection of information from a variety of sources and telephone interviews with experts on the graduate labour market in the United States (see Appendix 1). The latter included 10 interviews with graduate careers advisors, labour market analysts and education statistics specialists.

We have collated a wide range of information on the US labour market for new graduates. There were, however, some topics on which a limited amount of information relevant to the study was available. In particular, while the rising enrolment rates of older students is well documented, national level data on their labour market experiences following graduation are less evident. Information on graduates over the age of 26 is published from the *Recent College Graduates Survey*, a sample survey of first degree graduates. We have reported the results of this study in Chapter 5 but its usefulness as a resource for exploring the labour market for older students was limited by a number of factors, including small sample size and its restriction to bachelors degree graduates (when enrolment data suggest that many older students are engaged in sub-degree studies).

A second area for which limited information was identified is that concerning the labour market for sub-bachelors degree graduates, in particular their employment patterns on completion of their studies. The National Center for Education Statistics has recently completed a longitudinal study including this topic which will be published in mid-1994. This study will also provide useful information on older students since many undertake courses leading to sub-degree level qualifications.

In reporting the results of the study we have used the terminology prevalent in the United States to designate different categories of graduate. This was mainly because using the term 'graduate' to refer only to a first degree graduate as is the case in the UK would have made it difficult to differentiate between the different types of 'graduates' in the US system.

In the US, the term 'graduate' does not refer only to someone who has completed a first degree. Rather, it designates someone who has completed a particular program of study, and may, therefore, refer to a high school graduate (someone who has completed high school), an associate degree or vocational course graduate (someone who has earned an associate degree or attained a vocational qualification) *etc*. In the report we have specified the type of graduate referred to. Thus, a first degree graduate is a bachelors or baccalaureate[1] graduate; sub-degree graduates are divided into associate degree graduates and vocational course graduates; and those completing 12 years of secondary education are high school graduates (occasionally referred to as school leavers). The only exception to this is that the term 'college graduate' always refers to someone who has completed four years of college or a bachelors degree.

A second definitional issue concerns the term higher education itself. Higher education in the US comprises all post-secondary education, not just that which leads to a bachelors degree or higher degree. It is therefore roughly analogous to the UK's further and higher education systems combined. The main exception is that in the UK some of the students aged 18 and under who are in further education (*eg* 16 to 18 year olds on vocational courses) would, in the US, be considered as participants in secondary, not higher, education. In the report, higher education and post-secondary education are therefore used synonymously.

1.3 Report contents

The report is divided into six chapters. The first provides an overview of the US higher education system and US degrees, comparing aspects of the US system with that in the UK where appropriate. Those familiar with the US system of post-secondary education may wish to go straight to Chapter 3. This chapter focuses on the supply of US graduates, including an analysis of the educational attainment of the population as a whole and trends in the supply of graduates to the labour market. The next two chapters (Chapters 4 and 5) look at the demand side of the picture. Chapter 4 summarizes trends in demand indicators such as relative wages, unemployment, underutilisation and the changing occupational distribution of graduates. Chapter 5 looks in more detail at the situation of graduates in the 1990s. It presents information on the first destinations of 1991 bachelors degree graduates and summarizes available data on mature graduates and sub-degree graduates. Chapter 6 looks at the evidence on curricular change and business-university links. The final chapter summarizes the main findings of the study and presents our conclusions. It also makes recommendations for further research.

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[1] In the US a baccalaureate graduate is the same as a bachelors degree graduate and the terms are used interchangeably. Baccalaureate does not refer to the French secondary school qualification.

2. The US Higher Education System

2.1 Introduction

This chapter summarises the main characteristics of the US higher education system. Its aim is to provide an understanding of the context within which the changes discussed in the following chapters have occurred and to familiarise the reader with the terminology used in the remainder of the report. Where appropriate we have compared the US system with that in the UK.

For those readers who have some knowledge of the US post-secondary education system, the main points to note are:

- Participation in higher education in the US is broader than in the UK with 60 per cent of high school graduates going on to some form of post-secondary education.
- Access does not equate to outcomes, however, and US higher education is characterised by high dropout and stopout rates: only a fifth of 1980 high school graduates gained a bachelors degree within six years of leaving school.
- Students in the US have substantial choice in the courses they take within a broad framework of requirements for graduation in a particular subject.
- The institutional context is also different in that it comprises a mixture of public and private, two-year and four-year institutions.
- In both the US and UK, older students and women comprise an increasing share of all enrolments.

This chapter is divided into four main sections. The first looks at the main types of institutions in the US focusing in particular on the difference between four-year and two-year colleges. The second section goes on to examine trends in enrolment in higher education over the past three decades, highlighting the increasing significance of non-traditional enrolment. The third part of the chapter is concerned with higher education finance, while the fourth section introduces some of the main issues facing the US system of higher education in the 1990s.

Mass higher education in the United States is a product of the post-1945 period which has seen broad democratization of access and choice in post-secondary education. The impetus for expansion came from the federal government which introduced financial aid for former members of the armed forces in 1944. Subsequently, a range of additional programs was implemented in response to concern over the US' competitive position vis-à-vis the USSR and to the demands of the civil rights movement.

Although it has no constitutional mandate for education, the national government has become increasingly involved via a complex network of highly visible federal programs (Stewart, 1991, p.195). Current federal aid to institutions of higher education amounts to over $18 billion, about 12 per cent of all revenues to the sector. This gives the government some leverage over institutions of higher education. For the past two decades the emphasis of federal policy has been on student-based financial aid rather than general aid for institutions. This policy represented an effort to make colleges and universities more market oriented and increase their sensitivity to the needs of applicants (Stewart, 1991, p.197; Trow, 1993).

Responsibility for higher education (and education in general) rests with individual states and they contribute the bulk of public expenditure on the sector. There is, however, a great deal of institutional autonomy and the post-secondary system is characterised by immense diversity. In particular, the ability of individual states to influence institutional policy is obviously greater among publicly funded colleges than it can hope to be among the array of private institutions. The latter include a multitude of religiously affiliated, special-purpose institutions; small, well-endowed elite colleges; and large research universities (Stewart, 1991, p.202).

2.2 Types of institution

The US higher education system comprises some 3,640 institutions offering a range of post-secondary education and training. Within this system, there are clear distinctions between institutions based on the kinds of qualifications and courses they offer and institutional status. The main types of institutions within the system are:

- private four-year colleges and universities (1,569) offering bachelors degrees and in some cases higher degrees
- public four-year colleges and universities (600) offering similar courses to their private counterparts
- private two-year colleges (445) focusing in particular on vocational courses leading to a certificate or associate degree
- public two-year colleges (1,024) offering academic and vocational courses leading to sub-bachelors degree qualifications.

The main difference between the US and the UK is that while private institutions of higher education are still relatively rare in the UK, in the US these establishments account for over half (55 per cent) of the total (*Digest of Education Statistics 1993*, Table 232).

The remainder of this section discusses the difference between four-year and two-year colleges in more detail.

2.2.1 Four-year colleges and universities

Much of this report will be based on the experiences of those graduating from public and private four-year colleges/universities which award bachelors degrees. These institutions account for about 60 per cent of total higher education enrolment in the US. Many four-year colleges also offer post-graduate courses. They are analogous to UK universities and colleges, although there has been no attempt to ensure a consistent bachelors degree standard across all institutions. As a result, an informal hierarchy has emerged with large research universities (public and private) and a select group of liberal arts colleges (mainly private) dominating the upper echelons.

In the UK, students usually gain a degree by following an institutionally planned course of study which allows some individual variation within strictly defined parameters.[1] In the US, students obtain a bachelors degree by accumulating credits (course units) for successful course completion. Colleges generally organise the school year around one of two systems: the semester system, with terms of 14 to 18 weeks, or the quarter system, with terms of about 12 weeks. There are two semesters and four quarters in a year, although students at colleges with a quarter system usually register for only three out of four quarters.

Progress toward a bachelors degree is measured by 'credit hours'. There is no absolute standard but at least 120 credit hours are normally required to graduate from a college using the semester system and 180 'credit hours' for graduation under the quarter system. Students can choose to take any number of courses each semester or quarter, although four or five is the average number for a full-time student. At the end of the course, the student receives a credit for the number of hours a week a class has met.[2] For example, a student taking five courses each involving three hours of class time a week will receive 15 credit hours toward their degree that term. If progress is maintained at this rate, after eight semesters or 12 quarters the student should have accumulated the 120 or 180 credits needed to graduate.

Most institutions will require students to demonstrate ability across a range of core courses (breadth requirements) as well as specialist knowledge in both their chosen field (or major) and an additional subject (or minor). College departments specify the number of course units students need in order to major in a particular subject. Courses are designated upper or lower division depending on the degree of difficulty and level of specialisation. Lower division courses are generally completed in the first two years of study and provide the student with the necessary skills for progression to more specialised upper division courses. To obtain a degree students will have to take a minimum number of upper division courses as well as accumulating the required number of credits. They graduate with a BA or BS degree in the subject of their major.

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[1] There is, however, increasing interest in modularisation and the credit accumulation approach in the UK.

[2] For some courses, in particular, laboratory based classes, students will receive less than a hours' credit for an hours' attendance (DES, 1989, p.16).

In contrast to the UK, degrees are not categorised by class in the US. Students generally receive a grade for the courses they take and the average of their grades (grade point average) provides a summary of their achievements.[3] Students are assessed on their performance in each course, based on some combination of tests, assignments, and end-of-course exam. In contrast to the UK, there are no comprehensive end-of-year or end-of-degree exams. The grade point average (GPA) ranges from 0 to 4, with 4 being the highest grade, equivalent to an A and 0 the lowest (F). A minimum grade point average of 2 is required for the award of a bachelors degree. Each institution a student attends will also keep a record of the courses they take and this is available to students in the form of a transcript.

The self-contained nature of each course makes the system highly flexible. Credits can often be transferred from one institution to another. There is no requirement that they be accumulated through a period of continuous study and students can 'stop out' for a quarter, semester, or several years before returning to complete additional courses. They can also complete the requirements for a degree in as short a period as they choose, although some colleges require a minimum attendance period.

This approach to degree attainment provides students with a great deal of flexibility in their studies. It also makes it very difficult to assess the knowledge and skills US graduates are likely to possess. They will be required to demonstrate some basic numeracy and writing skills as well as some level of specialisation in their chosen subject. Nevertheless, the level and content of courses will vary substantially from institution to institution, as will the quality of instruction. This variation is somewhat limited by the system of accreditation, whereby boards evaluate institutions and publicly designate those that meet their standards of performance and integrity. Accreditation is voluntary but is almost a requirement if the college wants to receive state or federal funds (ECS, 1991, p.10).

The bachelors or baccalaureate degree is the main higher education qualification offered by four-year colleges. Further study toward a degree can take one of three forms. First, there is the masters degree which is generally a two year degree in the US, but otherwise roughly equivalent to a UK masters. It comprises a combination of course work and a dissertation or comprehensive examination. Second, students can enter a PhD programme. This consists of a combination of taught courses and individual research leading to a thesis. A minimum of three years study is required although in practice completion is more likely to take five or six years. The third category of post-graduate degrees are called 'first professional' degrees. These are vocationally oriented masters designed to equip students with the knowledge and credentials to enter professional occupations: law, dentistry and medicine. While students taking these courses may have oriented their undergraduate studies toward their chosen profession, prospective US doctors and lawyers, in contrast to their UK counterparts, do not follow a specific undergraduate program leading to qualifications in these areas.

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[3] There are some notable exceptions to this pattern. The University of California at Santa Cruz, for example, does not grade students but provides them with a written assessment of their performance in each course.

2.2.2 Two-year colleges

A second major group of institutions comprises some 1,220 two-year colleges (community and junior colleges) offering a combination of academic and vocational courses up to associate degree level. There are, in addition, a great many publicly supported local vocational schools and adult education centres and proprietary (private for-profit) business and trade colleges. Indeed, private vocational schools claim that private vocational education is the fastest growing segment of post-secondary education. One of the reasons for this is that in the 1980s post-secondary vocational education became more important as enrolment in high school vocational programs declined under the pressure of the high school 'excellence' movement (designed to address deficiencies in the academic preparation of high school graduates) (Grubb, 1989, p.49).

The qualifications offered by two-year institutions include the two-year associate degree. This can represent a final qualification in itself or, if they decide to transfer to a four-year college, students can use the accumulated credits as partial fulfilment of the requirements for a bachelors degree. In order to do this, however, the student must attend a two-year college with an articulation agreement with a four-year institution. Among institutions linked in this way, the associate degree may be considered the equivalent of completing the first two years (lower division) at a four-year college.

An associate degree requires a level of work similar to that required for a BTEC National Diploma in England and Wales. Subject coverage may, however, be somewhat wider than in this country and students may be required to follow a core curriculum of general education as well as courses appropriate to the major field of study.

An increasing proportion of associate degrees are being awarded in vocational areas. Over the decade to 1981, the proportion of vocational associate degrees increased from 51 per cent of the total to 71 per cent (Grubb, 1989, p.49). Many private vocational institutions are being accredited to award associate degrees and the distinction between them and community colleges is becoming less marked (Cohen, 1989, p.5).

One of the key concerns of policy makers has been the relationship between community colleges and the four-year institutions. Community colleges were a key element in the expansion of the US higher education system in the post-war period. For many students from minority ethnic group or low-income backgrounds, they continue to serve as a major gateway to higher education (Carter, 1990, p.1). They are local colleges[4] which in addition to providing a range of vocational and academic courses are also designed to act as feeder institutions for the four-year colleges. Over a third (36 per cent) of two-year college students state that they wish to prepare for transfer to a four year institution. In effect, the transfer rate is lower than this. Of the 1980 high school seniors who entered two-year colleges, 29 per cent had transferred to four-year institutions after three years. The proportion doing so varied, however, by ethnic group, with transfer rates for African Americans (18 per cent) and Hispanics (23 per cent) being considerably lower than the average and those for Asian Americans higher (41 per cent) (Carter, 1990, p.4). This is an important finding because students from minority ethnic group backgrounds are more likely to attend two-year colleges than white students (46 per cent compared to 36 per cent) (Carter, 1990, p.3).

Transfer rates are a highly contentious issue and studies using different definitions come up with different results. A later study of 366 colleges, for example, found that 23 per cent of students receiving 12 or more credits over four years transferred to a four-year college within four years (Cohen, 1993, p.4). Whatever the actual rate, however, there is evidence to suggest that the proportion of community college students successfully transferring has decreased (Grubb, 1991).

Among those students whose goal is a bachelors degree, the chances of eventually attaining that degree is reduced for those who begin their studies at two-year colleges: students entering two-year colleges tend to have lower levels of educational and degree attainment than do comparable individuals who enter four-year institutions (Pascarella and Terenzini, 1991, p.373; Knepper, 1989, p.2). For example, a study of 1980 high school seniors found that only about 15 per cent of those who entered two-year public colleges had earned a BA by 1986 (Ottinger, 1991, p.7).

While initially designed to improve access to four-year institutions, two-year colleges are increasingly stressing their role as local educational resources for people continuing their education but not wishing to gain a particular academic qualification. Many students who enter post-secondary education do not intend to earn an academic degree. They may enter to earn a technical certificate or license, to improve their knowledge, or to gain additional or improved skills (Knepper, p.1). One half of two-year college students surveyed by the American Association of Community and Junior Colleges stated that their primary reason for enroling was to acquire job-related skills; 15 per cent wanted to fulfil a personal interest; and four per cent wanted to increase basic English, reading or maths skills. This leaves just over a third who attend in order to transfer to a four-year college (Carter, 1990, p.4).

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[4] One study found that 96 per cent of two-year college students commuted to the institution they attended and 94 per cent resided in the same state (Cohen, 1989, p.12).

Community colleges offer a range of vocational education courses leading to a certificate or diploma in a specific subject. These courses are roughly comparable to those leading to a GNVQ in England and Wales. Also available are adult and continuing education courses similar to those offered by further education colleges in this country (DES, 1990).

2.3 Enrolment in higher education

2.3.1 Access to higher education

Entry to academic higher education programmes is conditional upon obtaining a high school diploma or passing a high school equivalency test (General Education Diploma or GED). There are, however, no national standards governing the issuing of high school diplomas (*ie* no equivalent to the UK's national system of 'A' levels or BTEC qualifications), although in the 1980s many states began to set a minimum number of teaching hours a week in certain core subjects, which had to be covered before students could graduate (ECS, 1991, p.6).

Many students seeking entry to a college or university are asked to sit a standardised test (Scholastic Aptitude Test or SAT). Students generally take the general SAT in addition to a number of subject specific achievement tests in a range of subjects including maths, science, languages and humanities (DES, 1989). These tests provide higher education institutions with a measure for comparing and assessing applicants' general and subject specific abilities. Applicants can also take advanced classes in high school which will give them exemption from some college course requirements.

The importance of SAT scores in the admissions procedure varies. They are most likely to be used when a university is recruiting from out of state or from the private sector and does not know the reputation of the high school the applicant has attended. More often greater significance is placed on the applicant's Grade Point Average in high school and the quality of the essay they are asked to write when applying.

2.3.2 Enrolment trends

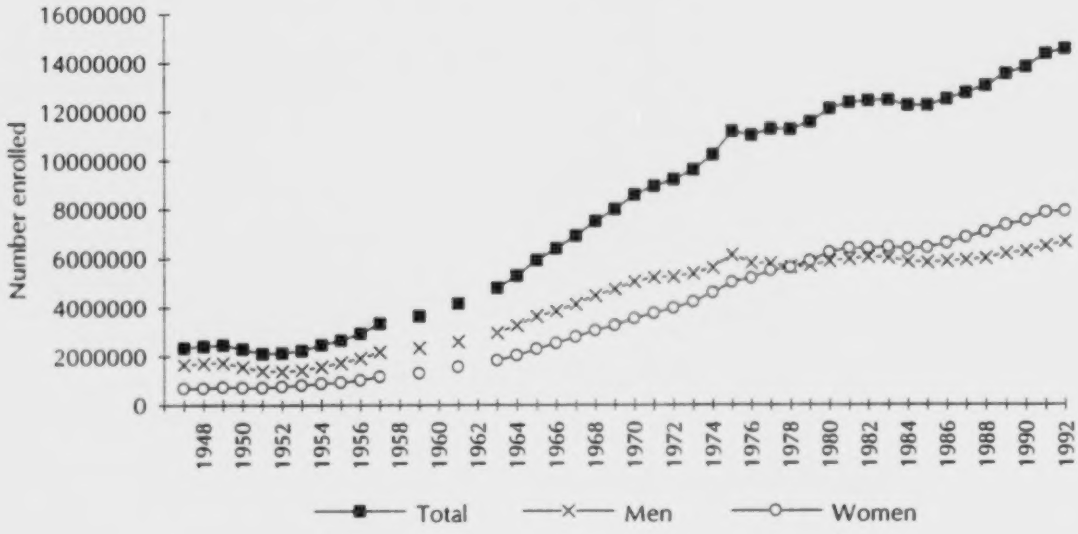
The US has a mass higher education system in that access is relatively unrestricted and a high proportion of the eligible population enrols in college or university. Even prior to the expansion of the system the US had a relatively high proportion of its population educated to degree level compared to the UK. Thus, by the mid 1940s five per cent of US adults over the age of 25 had a bachelors degree whereas in the UK the figure was closer to one per cent.

The trend in total enrolment in higher education is shown in Figure 2.1. Expansion was particularly rapid in the 1960s and 1970s, with enrolment increasing by 41 per cent between 1970 and 1980. Since

1980 enrolments have risen more slowly, up by about 17 per cent between 1980 and 1991 to reach a record 14.2 million (*Digest of Education Statistics, 1992*, p.163).

This expansion has taken place within a context of continuing growth in the US population. Population increase was particularly rapid in the 1960s and this was also the decade when the baby boom generation reached college age: between 1960 and 1970 the population of the US increased by 13 per cent but in the same decade the number of US 18 to 19 years olds rose by 52 per cent (*Digest of Education Statistics 1993*, Table 15). Some of the increase in enrolments during this time can therefore be attributed to demographic changes, in particular the rising proportion of the population accounted for by persons of college age.

Figure 2.1. Total enrolment in higher education institutions by sex 1947 to 1992[1]



Source: Digest of Education Statistics 1993, Table 168

[1] No data are available for 1958, 1960 and 1962

This aggregate picture disguises significant differences by type of institution, enrolment status, and student characteristics. Of particular importance are changes in the number of part-time students and older students and these trends are considered in more detail below (see 2.3.3). Other important changes include:

- Enrolment in two year colleges has increased particularly rapidly in recent years, with an increase of about a quarter between 1980 and 1991.
- Over the same period enrolment in all four-year institutions increased by 15 per cent.

- There have also been differing enrolment trends at the undergraduate, graduate and first-professional levels, with a more rapid rate of increase between 1986 and 1991 in the first two categories (about 15 per cent) than in the latter (four per cent).
- The number of women enrolled increased at a faster rate than men between 1980 and 1991 (by 25 per cent compared to nine per cent): women now account for almost 55 per cent of all those enrolled in higher education.
- The proportion of college students from ethnic minority groups rose between 1980 and 1990, from 17 per cent to 20 per cent. Much of this change can be attributed to the sharply rising numbers of Hispanic and Asian students, while the proportion of students who were African Americans remained static at about nine per cent.

2.3.3 Non-traditional enrolment

The two most significant trends in US higher education are the increase in the number of older students and the growth in part-time enrolment.

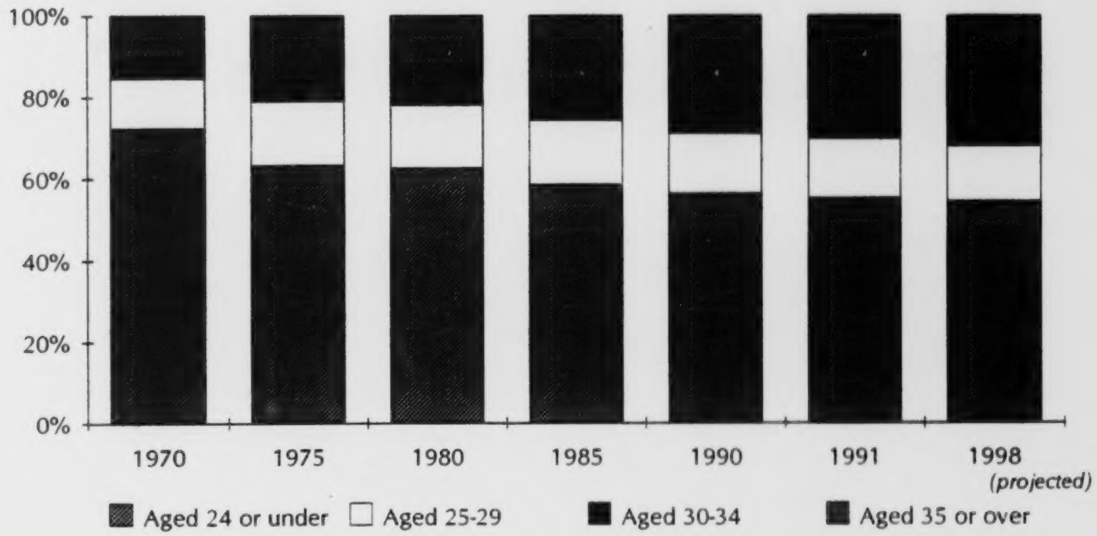
An increasing number of students are entering post-secondary education in their late 20s and 30s. During the 1980 to 1990 period enrolment of students under age 25 increased by just three per cent. In contrast, enrolment of those aged 25 and over increased by 34 per cent. This trend is projected to continue with a rise of 14 per cent in enrolments of persons over 25 and six per cent of those aged under 25 between 1990 and 1998 (*Digest of Education Statistics 1993*, p.165).

The proportion of students aged 25 and over has increased from 28 per cent in 1970 to 55 per cent in 1991 (Figure 2.2). There has been a particularly marked increase in the number of students aged 35 and over, whose share of total enrolments increased from 10 per cent in 1970 to 20 per cent in 1991.

These trends need, however, to be put into context. The population of 18 year olds declined by 17 per cent over the 1980s and that of 18 to 24 year olds by 13 per cent. On the other hand, the number of people in the older age groups increased. This means that the sustained increase in enrolment of *traditional* age college students has resulted from higher rates of participation among this age group (see section 2.3.4). By contrast, the rates of college enrolment among the older age-groups did not increase appreciably during the 1980s and the rise in enrolment among older students has resulted from the growth in the size of the population over age 24 (Andersen, 1990, p.1).

The ageing of the student population has been accompanied by increased part-time enrolment. In 1970, almost 2.8 million students, 32 per cent of the total, attended college on a part-time basis. By 1990, this number had increased to 6.2 million, or 45 per cent of the total (*Digest of Education Statistics 1993*, Table 168). Most of this growth occurred during the 1970s, which registered an increase of 80 per cent in the number of part-time enrolments, and was related to the expansion of two-year colleges during this period. In the 1980s, by contrast, the number grew by 20 per cent. Projections indicate that the number of part-time undergraduates will continue to increase, but at a similar rate to full-timers. By 2003 6.8 million or 42 per cent of the 16.1 million students are projected to attend part-time (*Projections of Education Statistics to 2003*, Table 3).

Figure 2.2. Age distribution of higher education enrolments 1970 to 1998 (selected years)



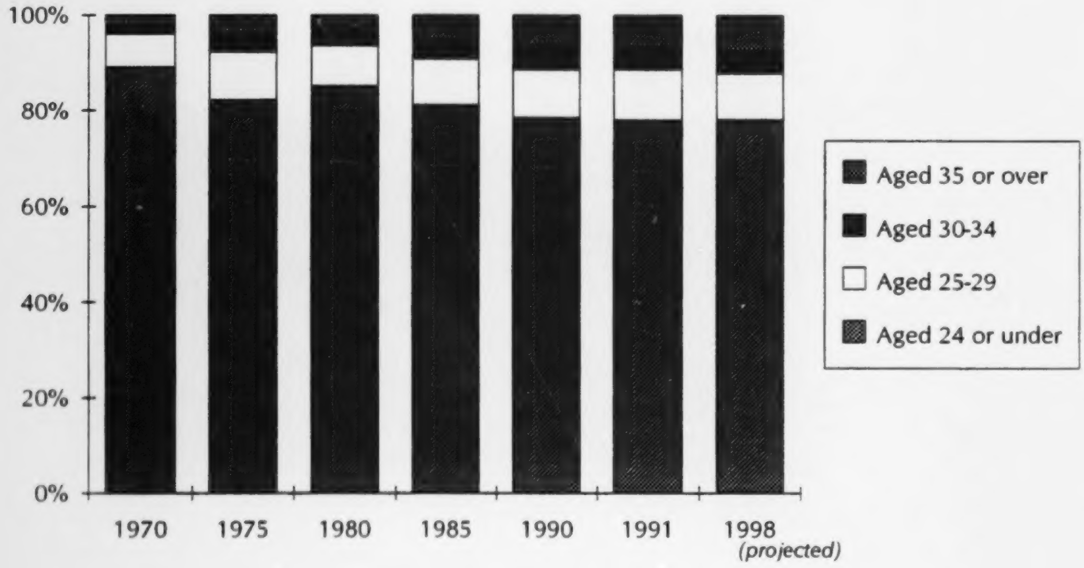
Source: Digest of Education Statistics 1993, Table 170

Part-time students are more likely to be older than full-time students and to be working while studying. In 1991, 37 per cent of part-time students were aged 35 and over, compared to six per cent of full-timers (Figures 2.3 and 2.4). In 1991 more than two-thirds (68 per cent) of part-time college students aged 16 to 24 were employed, compared to less than half (47 per cent) of full-time students (O'Brien, 1992, p.3).

Part-time students are also more likely to attend public two-year institutions. In 1990, 65 per cent of students in these institutions were enrolled part-time. This compares with about a quarter of students in four-year colleges (public and private) and private two-year colleges (O'Brien, 1992, p.4).

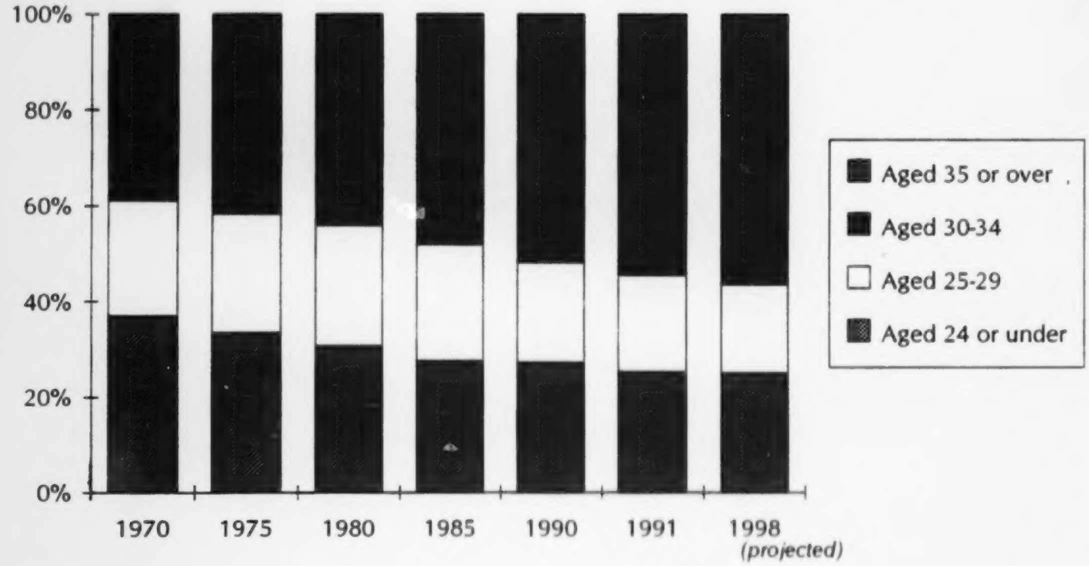
Part-time students attending two-year colleges may have different goals than those attending full-time. A Michigan community college survey found that only 19 per cent of part-time students planned to transfer to a four-year college or university compared to 34 per cent of full-time students. They were also more likely to state that their primary goal was 'improvement of existing job skills' (23 per cent compared to seven per cent of full-timers) (O'Brien, 1992, p.8).

Figure 2.3. Age distribution of part-time enrolments in higher education (selected years)



Source: Digest of Education Statistics 1993, Table 170

Figure 2.4. Age distribution of full-time enrolments in higher education (selected years)



Source: Digest of Education Statistics 1993, Table 170

2.3.4 Patterns of participation in higher education

The proportion of high school graduates enroling in college in the October following graduation has increased substantially over the past 20 years. In 1973, 47 per cent entered post-secondary education, 32 per cent at four-year colleges and 15 per cent in two-year institutions. By 1990, 60 per cent were continuing with their studies, 40 per cent in four-year institutions and 20 per cent in two-year colleges (*Condition of Education, 1992,* p.173). While the different definitions of higher education in the US and UK make comparison difficult, the current age participation rate for 18 to 19 year olds in the UK is over 25 per cent, rising to 33 per cent by the year 2000.

As has been the case in the UK, the proportion of women participating in higher education has increased more rapidly than that of men. In 1973, 50 per cent of men and 43 per cent of women high school graduates went onto college whereas by 1990 these proportions had risen to 58 per cent for men and 62 per cent for women (*Digest of Education Statistics 1993,* Table 179).

This information provides a snapshot at one point in the life cycle. Given the flexibility of the US system and the declining importance of the traditional college student, however, longitudinal studies can provide a more accurate picture of the pattern of participation in higher education. Two major longitudinal studies of US high school seniors provide valuable information on participation in higher education by this group and the outcomes of their experiences as college students.

The key point highlighted by both these studies is that while a high proportion of US high school leavers engaged in some formal study, their pattern of participation in higher education was extremely varied. The 1980 study found that only a third of 1980 high school graduates had not attempted any formal study by 1986. Almost a half (48 per cent) entered post-secondary institutions immediately after high school.[5] An additional 19 per cent attended college at some point during the six years after they graduated (Ottinger, 1991, p.4).

The data indicate that of the students not going straight from high school to college, less than 40 per cent actually attended at some point over the next six years. This suggests that the likelihood of undertaking post-secondary education declines with time since graduation from high school, a finding which replicates that of the earlier 1972 study (Knepper, 1989, p.6). If current trends in adult enrolment increase, however, this situation is likely to change.

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[5] This is consistent with Current Population Survey data for 1980 on the enrolment rates of high school graduates, 49 per cent of whom were enrolled in college in the October following graduation (*Condition of Education,* 1992, p.28). Among high school graduates entering post-secondary education immediately after leaving school, 13 per cent entered public two-year institutions (Ottinger, 1991, p.7).

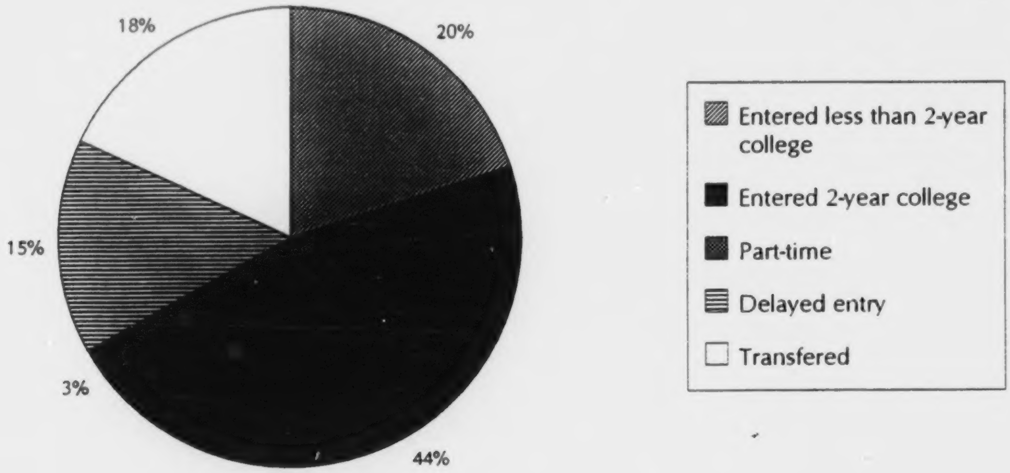
During the first six years after high school, 46 per cent of 1980 high school seniors who enrolled in post-secondary education attended only four-year institutions. Almost a quarter who enrolled attended only vocational schools or junior colleges while the remaining 30 per cent attended both types of institutions (Eagle, 1989, p.7).

This brings us to the issue of the non-traditional student. As defined in the 1980 study, a traditional student is one who enters a four-year institution as a full-time student straight after leaving high school, maintains continuous full-time enrolment for four years, and graduates with a bachelors degree at the end of that period. In the 1980s it became evident that less than half of degree completers were following a traditional pattern of study (Knepper, 1989, p.1).

There are two main points at which a student can deviate from the traditional pattern of degree completion. They can start college in a non-traditional manner and/or they can fail to maintain full-time continuous enrolment whilst in college. If we look at patterns of starting college first, the majority of 1980 high school graduates did not fit the traditional entrance pattern, with only 29 per cent of all leavers and 43 per cent of those entering post-secondary education going straight into full-time higher education at a four-year institution (Ottinger, 1991, p.4). An additional 38 per cent of leavers and 57 per cent of college attendees adopted a non-traditional pattern.

The variety of non-traditional patterns is illustrated in Figure 2.5. The majority of non-traditional attendance comprised students starting their studies at two-year (44 per cent) or less-than-two-year institutions (20 per cent). Another 18 per cent transferred from two-year to four-year institutions; 15 per cent delayed their entry into education; and three per cent studied part time (Ottinger, 1991, p.5).

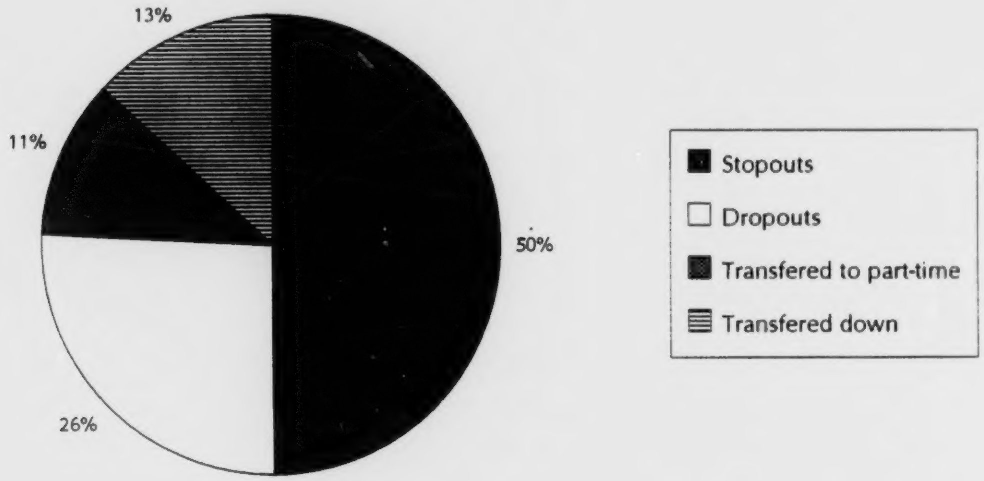
Figure 2.5. Non-traditional college entry patterns of 1980 high school graduates



Source: Ottinger, 1991

Even among those who began college on the traditional path, half had 'stopped out' of education at some point during their studies but had returned by 1986.[6] In addition, more than a quarter (26 per cent) of traditionalists had dropped out of college and not returned by 1986 (Figure 2.6).

Figure 2.6. Pattern of traditional path leavers



Source: Ottinger, 1991

A number of factors appear to be associated with stopping out and dropping out. They include:

- Ethnicity — African American students were more likely to drop out than any other ethnic group (Ottinger, 1991).
- Socioeconomic status — students from low socioeconomic backgrounds dropped out at a far greater rate than those from high socioeconomic status families (44 per cent compared to 14 per cent) (Ottinger, 1991).
- Working off-campus — students who work off-campus are less likely to complete a bachelors degree but those who work part-time on-campus are more likely persist with their education (Anderson, 1981; Pascarell and Terenzini, 1991, p.407).
- Attending a two-year institution — over 40 per cent of students attending these kinds of colleges had dropped out without

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[6] Men were somewhat more likely to stop out than women (53 per cent versus 48 per cent) (Ottinger, 1991, p.6).

gaining a qualification after six years compared to 19 per cent attending four-year colleges (Grubb, 1989).

- Access to financial aid — students with access to financial assistance have higher persistence rates than those without (Porter, 1989, p.14; Nora and Horvath, 1989).[7]

2.3.5 Outcomes from higher education

One of the more surprising findings from the 1980 study of high school seniors was that by 1986 only 19 per cent had attained a bachelors degree.[8] Given that the average time taken to obtain a bachelors degree in the US is now over six years, a higher proportion were likely to have completed after the six year follow-up study. Nevertheless, while the US can be said to have mass access to higher education, the fact that less than one fifth of school leavers attain a degree within six years suggests that access does not equate to outcomes. In the UK, over a quarter of 18 to 19 years olds entered higher education in 1992 and with wastage rates at 15 per cent, over one fifth of the age group is expected to graduate in four years. It is already the case that in terms of outcomes, the UK and the US systems are comparable.

One of the main reasons for the difference between access to and outcomes from higher education in the US is the variable pattern of participation outlined above. How a student attends college is a key determinant of degree attainment, with both delayed entry and discontinuous enrolment having a negative effect on completion rates. More than half (53 per cent) of 1980 high school graduates who entered on the *traditional* path had earned a bachelors degree by 1986. By contrast, only nine per cent of school leavers who entered college on a *non-traditional* path had obtained their BA after six years (Ottinger, 1991, p.7). Those who started college immediately and maintained continuous enrolment were most likely to earn a BA by 1986, with 74 per cent gaining a degree in this time. Several studies have shown that both discontinuous enrolment and transferring from one four-year institution to another affect degree attainment. In the 1980 study, only 39 per cent of 'stopouts' had obtained a degree by 1986 (Ottinger, 1991, p.7; Pascarella and Terenzini, 1991, p.386).

Success in college is associated with student characteristics. In particular, ethnicity and socioeconomic status affect the likelihood of getting a degree:

- African American and Hispanics were less likely than other groups to enter post-secondary education immediately after high school, with 42 and 39 per cent respectively doing so compared to 50 per cent of whites and 76 per cent of Asian Americans.

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[7] There is however some debate about the extent to which financial difficulties are a *direct cause* of leaving college (see Tinto, 1987).

[8] Among those who had entered post-secondary education by 1982 the proportion gaining a first degree was somewhat higher (30 per cent).

- About one-third of African Americans and Hispanics who started on the *traditional path* had obtained bachelors degrees by 1986 compared with an average of 53 per cent.
- Whites who started college in a non-traditional pattern were more likely to attain a bachelors degree than nontraditional African American and Hispanic attendees (ten per cent of the former earned degrees compared to five per cent and four per cent respectively of the latter).
- High school graduates from high socio-economic status backgrounds were far more likely to earn a bachelors degree than those from lower status backgrounds. While 66 per cent of high-SES, high ability students who entered on the traditional path attained degrees by 1986, only 44 per cent of their high ability, low-SES counterparts did so (Ottinger, 1991).

Not all high school graduates entering post-secondary education want to obtain a bachelors degree. The 1980 study discussed above found that of those who had entered post-secondary education by 1984, 11 per cent had earned an associate degree and eight per cent a vocational certificate (Eagle, 1989, p.23).

Despite the discrepancy between access and outcomes, the US has a highly qualified working age population relative to other countries. In the 25 to 64 year age group, 23 per cent of the US population have completed higher education compared to 15 per cent of Canadians and just nine per cent of the UK population (*Condition of Education*, 1992, p.64). This difference can be expected to decline somewhat with the development of mass higher education in the UK.

2.4 Financing higher education

One of the major differences between the UK and US systems of higher education relates to the way students fund their studies. Colleges charge tuition fees to students. If they qualify, students may gain federal, state or university funding to help pay tuition and other costs, but institutions do not automatically receive a tuition payment for each student from these sources. In addition, students qualifying for financial aid will not necessarily receive funds to cover the full cost of tuition and subsistence: the amount they receive will depend on their financial circumstances and a range of other factors. In 1989, 56 per cent of undergraduates (*ie* those in bachelors degree and non-degree programs) and 67 per cent of post-graduate students received financial aid. Students in all types of institutions are eligible for financial aid, with 48 per cent of those in public colleges, 70 per cent of those in private nonprofit colleges and 87 per cent of those in private for-profit institutions receiving such aid. Much of this comes from the federal government, but states and individual institutions also contribute substantial sums.

In the 1980s, the federal government switched the emphasis of its financial aid programs from grants to loans. The current UK government is also adopting this strategy. In the US, the proportion of first time students in four-year institutions receiving federal grants declined from 54 per cent in 1979 to 35 per cent in 1987. Over the same period, the proportion receiving federal loans increased from 24 per cent to 27 per cent. A similar trend was evident among those enroling in two-year institutions (Hunt, 1992, p.151). The main problem with this strategy is the high cost of loan defaults. The rate of non-repayment has remained steady at about ten per cent but the volume of defaulted loans has grown with the expansion of the system. In 1989 default costs were approaching $2 billion, up from less than $300 million in 1982 (Gladieux, 1989, p.38; Gordon, 1993). The federal government has become concerned at the level of loan defaults and the Department of Education has begun to ask accrediting agencies to crack down on colleges with a high student loan default rates (Hodges, 1994, p.8).

In the US, there is also a far greater expectation that students and their families will contribute to the cost of higher education. The proportion of students relying on their families for financial assistance increased in the 1980s. Among first time enrolees in four-year institutions, the proportion of students receiving financial assistance from parents or a spouse increased from 76 per cent to 84 per cent between 1979 and 1987. The largest change was, however, in the percentage relying on their savings, 89 per cent in 1987, up from 68 per cent in 1979.

It is also the case that many students in the US expect to work while they study. The proportion of first time students using money from a job to finance their education rose from 22 per cent in 1979 to 42 per cent in 1987 (Hunt, 1992, p.151). This is reflected in data on the employment rate of college students which show that the proportion of students working increased from 45 per cent in 1959 to 56 per cent in 1986. This growth is due to the increasing propensity of full-time students to work, with the proportion doing so rising from 29 per cent in 1959 to 43 per cent in 1986. Over the same period a consistent 90 per cent of part-time students were employed (Stern and Nakata, 1989). This work mainly takes the form of part-time employment, often on the college campus.

The extent to which the way higher education is funded affects access, is the subject of debate. As noted above, however, students with access to financial aid tend to have higher rates of staying on once in college than those without such aid (Porter, 1989, p.4; Nora and Horvath, 1989). In addition, the affordability of higher education is a subject of concern in the US. The average cost of undergraduate tuition and fees in four-year institutions reached $4,400 a year in 1992. If room and board is included, this figure rises to over $8,250. This overall figure disguises large differences between the cost of attending public compared to private institutions. Average tuition and fees ranged from $2,100 at public four-year institutions to $9,800 at private institutions. If room and board are included the annual cost of attending a public university rises to $6,000 and that of going to a private university to $13,900. Two-year colleges are cheaper, with average tuition costs of less than $1,200 a year (*Digest of Education Statistics 1993*, Table 306).

2.5 Issues for higher education

There are a number of major issues facing the US higher education system. The context for these debates is increased concern about the country's ability to train the kind of workforce required for a competitive, high-skill, high value-added economy (National Center for Education and the Economy, 1990).

In the first place, the role of higher education within the educational system attracts much debate. It is generally accepted that the serious problems with US education lie at the elementary and secondary levels. This means that the capabilities of those students who enter higher education have changed. Over the past two decades, the average score on the standardised SAT which many high school leavers take as a college entry requirement has declined (*Condition of Education*, 1992, p.54). The effect of this is being felt by college teachers, two-thirds of whom believe there has been a consequent widespread lowering of standards in higher education. Three-quarters of those surveyed in 1989 considered their students 'seriously unprepared in basic skills' and 68 per cent felt that colleges spend too much time and money teaching students what they should have learned in high school (Miller, 1990, p.32; Stewart, 1991, p.203).

A second issue facing US higher education in the 1990 relates to the effect of rising costs of college education on the ability of particular categories of students to enter and remain in the system. In the 1980s, college costs grew faster than the consumer price index and median family income (Gordon, 1993, p.26; *Condition of Education*, 1992, p.36).[9] The rising cost of college education has increased the problems faced by students from poorer backgrounds, many of whom are from minority ethnic groups. This has tended to undermine efforts to increase the diversity of the student body. The main problem in the current climate is the retention of minority students, who are much more likely to drop out of college than their white counterparts and less likely to return once they have left. A number of universities are implementing strategies to counteract minority withdrawal from higher education, including the introduction of new mechanisms of financial aid designed to limit the debt burden on low income students.

Third, a combination of rising costs of college attendance and increased institutional accountability has led to growing interest in assessing what students gain from attending college. Most assessment involves measuring basic college-level skills such as English or mathematics or higher-order writing skills. Academic progress and employment outcomes may also be measured, with these forms of assessment being particularly prevalent among community colleges. To date, relatively few institutions assess skills such as critical thinking, quantitative problem solving or oral communication. It is also the case that the focus of much assessment is on entry-level skills and not outcome measures of academic or personal growth during college (Hexter and Lippincott, 1990).

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[9] In response to the difficulty many middle and low income families face in paying for higher education, some states have introduced tax-free advance tuition payment plans for parents who plan to send their children to state universities (Miller, 1990, p.33).

The National Governor's Association has been particular vocal in the assessment movement and has urged governors to hold colleges accountable for improvements in teaching and learning. In addition, a number of private colleges have introduced programs which focus on assessing students' progress in a range of abilities (Smith, 1993). While there is a great deal of interest in these programs, their impact of the wider system of higher education has yet to be gauged.

2.6 Summary

The key differences between the US and UK systems of higher education are:

- The institutional context — in the US there are public and private institutions leading to two-year and four-year qualifications. In the public sector there are substantial and formalised links between the two-year and four-year sectors which allow students to transfer credit from one to the other.
- Degree courses — in the US students accumulate credits toward a degree with a set number of credits being required to major in a particular subject.
- The rate of participation in higher education — participation in higher education is much broader in the US with 60 per cent of 18 year old school leavers continuing with their education (40 per cent in four-year institutions).
- The pattern of participation in higher education — this is much more varied in the US with a high proportion of participants stopping or dropping out of college before gaining a qualification (about 50 per cent of those starting a bachelors degree).
- Access to higher education in the US does not necessarily equate to outcomes and less than a fifth of school leavers attain a degree within six years of graduating from high school. In the UK, over a quarter of 18 to 19 year olds entered higher education in 1992 and 85 per cent of these are expected to graduate. This makes the two countries comparable in terms of outcomes from high education.

3. US Graduate Supply Trends

3.1 Introduction

This chapter is concerned with the educational qualifications of the US population and changes in the supply of highly qualified workers. It is divided into two main sections. The first outlines the characteristics of the adult population in terms of their educational attainment to provide a summary of the current stock of qualified persons. The second section is concerned with trends in the supply of new graduates by level of qualification and field of study. The aim is to document the expansion of output from higher education and to provide a context for the discussion of demand trends in Chapter 4.

3.2 Educational qualifications of the population

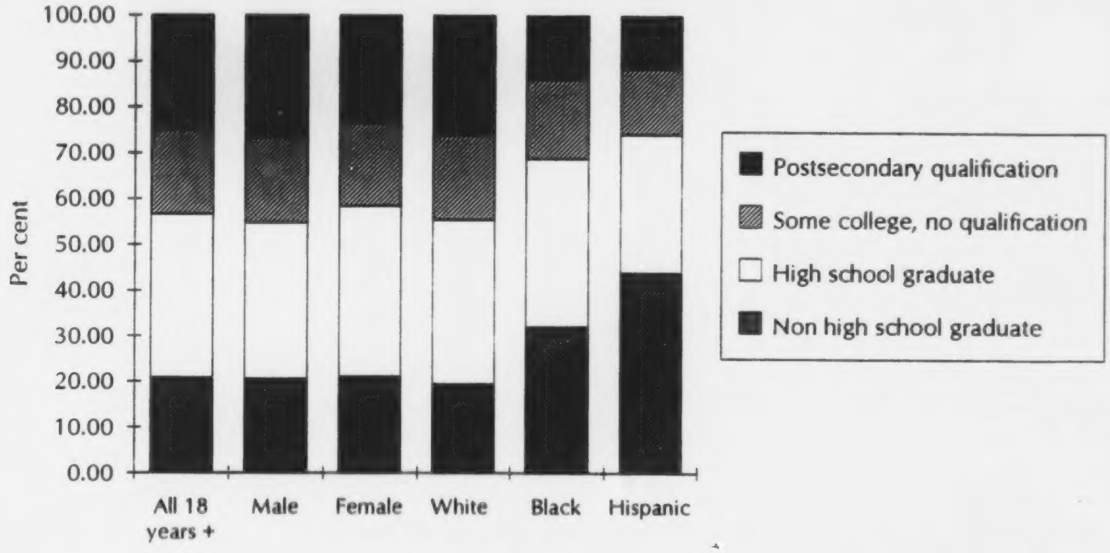
The US has a highly qualified population with over 25 per cent of those aged 18 years and over having at least some post-secondary educational qualifications. An additional 18 per cent have attended college but left without gaining a qualification (Figure 3.1). Almost 13 per cent have a bachelors degree, six per cent an advanced degree and seven per cent an associate degree or vocational degree or certificate.

Among younger people, these proportions are even higher. Thirty one percent of those aged 25 to 34 have some post-secondary education. Seventeen per cent have completed a bachelors degree and nine per cent an associate degree or vocational qualification. The remaining five per cent have attended college at some time but left before gaining a qualification (US Bureau of the Census 1992a, Table 1).

The proportion of the population with different kinds of qualifications varies by characteristics (Figure 3.1). A slightly lower proportion of women (24 per cent) have post-secondary qualifications than men (27 per cent), although similar proportions of both sexes have some college but no degree or sub-degree award (18 per cent).

Both the black and hispanic populations are considerably more likely than their white counterparts to fail to complete high school. Forty-four per cent of hispanic and 32 per cent of black people are not high school graduates compared with 19 per cent of whites. While over a quarter (26 per cent) of whites held qualifications beyond high school in 1990 among blacks this proportion declined to just 14 per cent and among hispanics to 12 per cent.

Figure 3.1. Educational level by characteristics: spring 1990



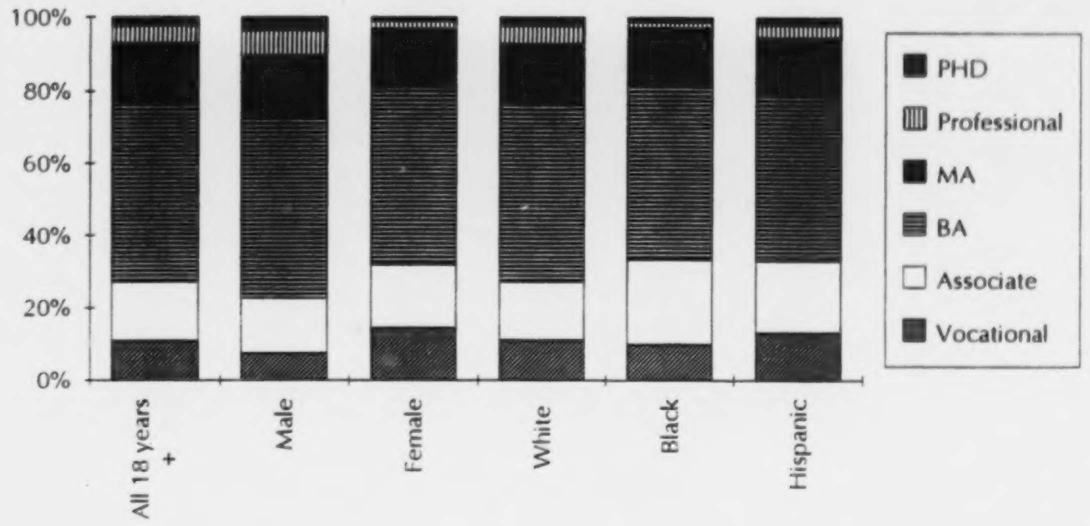
Source: US Bureau of the Census 1992a, Table 1

If all those with no post-secondary qualifications are excluded from the analysis, the significance of the bachelors degree becomes clear (Figure 3.2). Overall, almost a half of the post-secondary qualified adult population hold a bachelors degree as their highest qualification. Over a quarter (27 per cent) have vocational and associate degree qualifications while the remaining 23 per cent hold higher degrees.

The main differences by gender are that women are less likely to have attained a higher degree and more likely to have vocational qualifications. Among men, 27 per cent of those with post-secondary qualifications have a higher degree whereas for women this proportion declines to 19 per cent. Similar proportions of men and women hold associate degrees but 14 per cent of women have sub-degree vocational qualifications compared to seven per cent of men.

There are also marked differences by ethnic group. Black and hispanic populations are more likely than whites to hold an associate or vocational sub-degree qualification as their highest qualification — 33 per cent of both black and hispanic people with some post-secondary qualification have sub-degrees compared to 27 per cent of whites. Whites are more likely to hold higher degrees, especially in relation to the black population with the main difference lying in the proportion having professional degrees (less than two per cent of blacks compared to almost five per cent of whites).

Figure 3.2 Highest degree earned by population characteristics: spring 1990 (post-secondary qualified population only)



Source: US Bureau of the Census 1992, Table 1

Educational level is rising among the adult population. Long term trends in level of education can only be assessed using data from the Current Population Survey, which provides information on years of school or college attendance but does not categorise the population by highest degree attained.[1] The CPS shows that there has been an increase in both the median years of schooling people over the age of 25 have completed (from nine years in 1950 to 13 in 1990) and the proportion with four or more years of college (from six per cent in 1950 to 21 per cent in 1991). In response to the rapid rise in degrees conferred in the post-war period, the proportion of adults with four or more years of college education increased particularly sharply in the 1970s. In 1970, 11 per cent had completed four or more years of college whereas by 1980 this had risen to 17 per cent (US Bureau of the Census, 1992b, Table 18).

For the 1984 to 1990 period, data on actual degree attainment are available. The proportion of the population aged 18 or over without a high school diploma declined between 1984 and 1990, from over a quarter in 1984 to 21 per cent in 1990. Over the same period, the proportion of adults who had obtained a bachelors degree rose from 11 to 13 per cent (US Bureau of the Census, 1987, Table 1).

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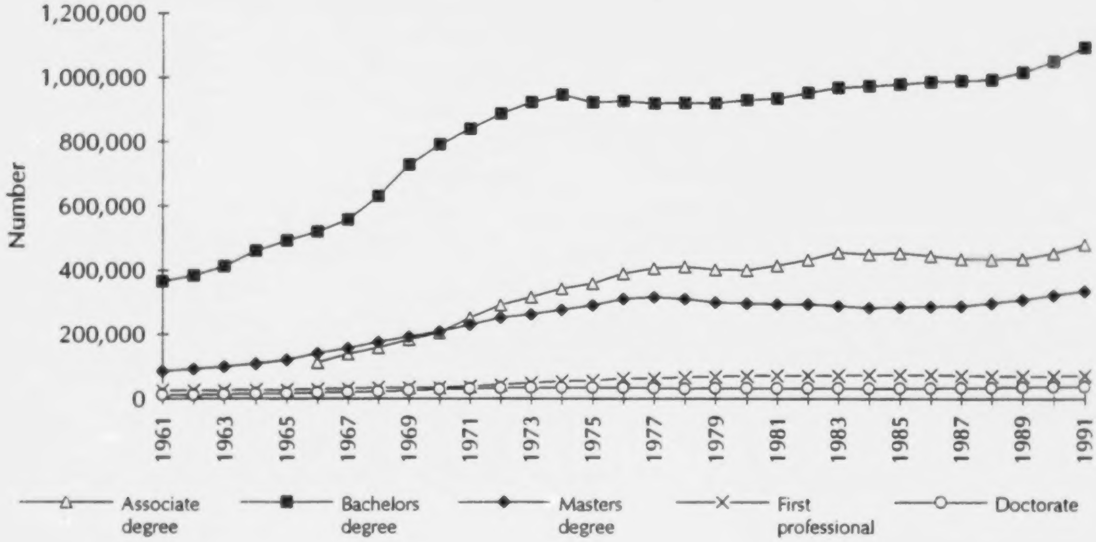
[1] This is increasingly problematic since less than half of those attaining a bachelors degree do so in the traditional period of four years and many of those with several years of college education do not obtain a bachelors degree.

3.3 Supply trends

3.3.1 Degrees awarded by type of degree

Consistent with the enrolment trends identified in Chapter 2, the number of degrees awarded in the US has increased substantially since the 1960s (Figure 3.3). Even prior to this, however, the proportion of the US population with four years or more of college had been growing for some decades. In 1947, over five per cent of the population aged 25 and over had completed at least four years of college, a proportion which had risen to over eight per cent two decades later (US Bureau of the Census, 1992b, Table 18). In contrast, the growth in graduate output in the UK started from a much lower base with not more than one per cent of the adult population holding a degree in the immediate post-war period.

Figure 3.3. Degrees conferred by type of degree 1961 to 1991



Source Digest of Education Statistics 1993, Table 235

Almost 1.1 million bachelors degrees were conferred in 1991, up from 365,000 in 1961, a threefold increase. The highest rate of increase in bachelor degree awards occurred in the 1960s when the number of degrees rose by an *annual* average of 13 per cent (Table 3.1). A number of factors can account for this expansion including:

- the effect of the immediate post-war baby boom which increased the number of 18 years olds in the population
- increased enrolment rates by men as a result of draft deferment during the Vietnam War
- rises in the number of women continuing with their education

- federal programs to promote higher education and in particular to widen access to individuals from minority ethnic groups and poorer backgrounds.

The rate of increase in bachelors degree awards fell considerably in the following decade before picking up somewhat in the 1980s (Table 3.1). The number of bachelors degrees awarded to men in the 1970s actually decreased slightly (by one per cent), whereas a continued increase was recorded for women (28 per cent).

Table 3.1 Change in the number of degrees awarded by type of degree 1961 to 2001 (per cent change by decade)

Degree type	1961 to 1971	1971 to 1981	1981 to 1991	1991 to 2001 (projected)
Associate degree				
Total	–	64.8	15.7	11.7
Men	–	30.6	5.3	12.3
Women	–	110.5	24.3	11.3
Bachelors degree				
Total	130.0	11.4	17.1	9.9
Men	111.8	−1.2	7.3	11.7
Women	158.9	27.8	26.9	8.4
Masters degree				
Total	172.4	28.3	14.0	8.0
Men	138.9	6.4	6.4	8.6
Women	244.9	61.0	21.5	7.4
First professional degree				
Total	50.3	89.6	0.0	2.6
Men	44.6	48.5	−17.0	−0.3
Women	255.3	697.8	46.6	7.1
PhD				
Total	203.6	2.7	19.2	5.4
Men	190.9	−17.5	9.0	−9.5
Women	311.6	123.9	41.9	30.7

Source: Digest of Education Statistics 1993, Table 235

In the 1980s, declines in both enrolments and bachelors degree recipients were widely predicted due to demographic changes leading to a decreasing number of 18 years olds (the 'baby bust'). In the event, the expected contraction did not occur, mainly due to increased enrolment rates by both men and women and older age groups (Carnegie Foundation for the Advancement of Teaching, 1989).

The pattern of expansion in associate degrees was somewhat different from that for bachelors degrees, although data are only available from the mid-1960s on. The most rapid increase occurred in the 1970s, when the number of degrees awarded rose by 65 per cent. This was a time of very rapid expansion in the community college system which awards the majority of associate degrees.

The proportion of degrees awarded to women has increased steadily over the last 30 years with particularly rapid rises in the 1960s and 1970s. Women accounted for less than 40 per cent of bachelors degrees in 1961 whereas by 1991 this proportion had increased to 54 per cent (Table 3.2).

Published data on all degrees conferred are not broken down by age. The Recent College Graduates Survey, a representative sample survey of 14,000 bachelors degree recipients, shows, that in 1990 a third of bachelors degrees were awarded to students aged 26 or over (National Center for Education Statistics, 1993, Table A1).

Table 3.2 Proportion of degrees awarded to women 1961 to 2001 (per cent)

	1961	1971	1981	1991	2001 (projected)
Associate degree	–	42.8	54.7	58.8	58.6
Bachelors degree	38.5	43.4	49.8	54.0	53.0
Masters degree	31.7	40.1	50.3	53.6	53.3
First professional degree	2.8	6.3	26.6	39.1	40.8
PhD	10.5	14.3	31.1	37.0	45.9

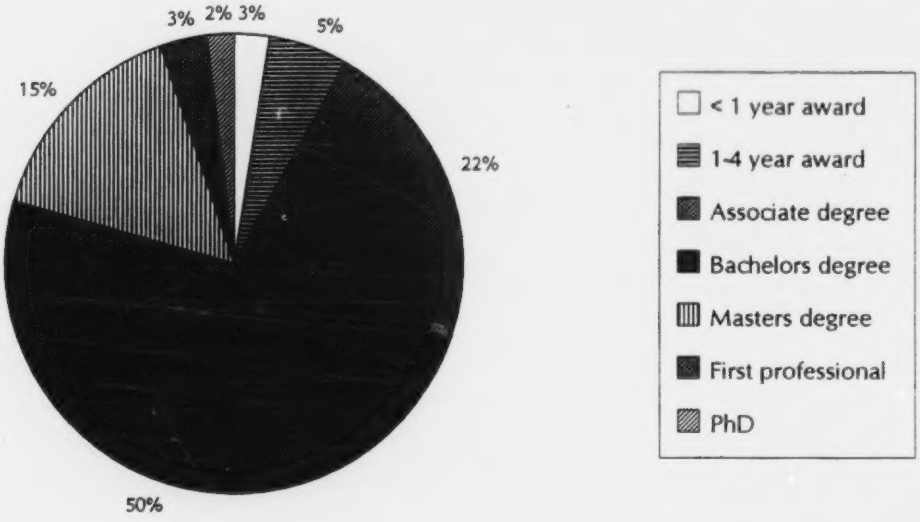
Source: Digest of Education Statistics 1993, Table 235

Expansion in higher education affected all degree types. Growth continued into the 1980s and early 1990s with the number of associate, bachelors, masters and doctorate degrees increasing by between 14 and 19 per cent over the decade to 1991. The number of first professional degrees awarded, however, has stabilised in recent years at around 70,000.

The particularly marked expansion in associate degree awards between 1966 and 1991 has meant that the proportion of all awards accounted for by bachelors degrees has declined from 63 per cent in 1966 to 54 per cent in 1991. If associate degrees are excluded, however, since 1966 a stable 72 to 73 per cent of degrees has been awarded at the bachelors level. This suggests that, overall, there has been no disproportionate increase in the number of students gaining a higher degree, although this might vary by discipline. While the number of higher degrees awarded has risen, the increase is in line with the overall growth in bachelors degrees awarded. The data do not, therefore, support the assumption that an increasing proportion of students are obtaining advanced degrees in order to differentiate themselves in the labour market and increase their attractiveness to employers.

Figure 3.4 shows the distribution of all higher education qualifications conferred by type of award. Bachelors degrees account for a half of all awards, with over one million such degrees conferred in 1991. Associate degrees and other subbaccalaureate awards account for the bulk of the remainder (30 per cent).

Figure 3.4. Distribution of qualifications by type of award: 1991



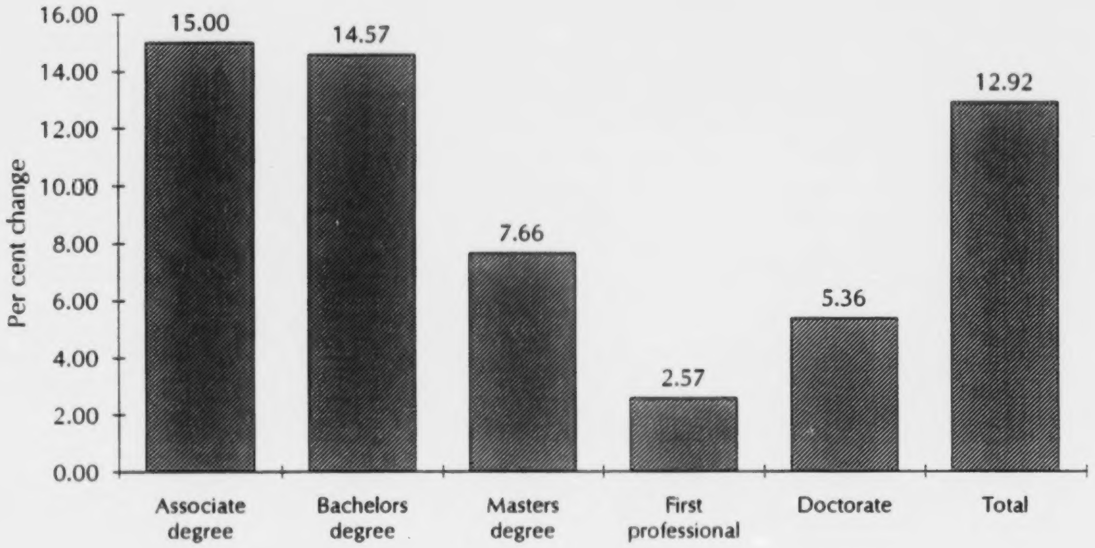
Source: Digest of Education Statistics 1993, Tables 235 and 237

Projections to 2003 show continued increase at all levels for which forecasts are made (Figure 3.5). The number of associate and bachelors degrees is expected to increase most rapidly (by 15 per cent), with lower rises in the number of masters, first professional, and doctorate degrees.

Projections of first degree graduates by subject are not available. There is, however, some concern that the proportion of degrees awarded in science and engineering subjects is expected to continue to decline over the 1990s. The main government policy to address this situation has been to encourage high school students to take these subjects as part of their secondary education. A particular focus has been to encourage minority students to take mathematics and science in high school in the hope that they will continue studying these subjects as they enter higher education.

Projections indicate that the proportion of degrees awarded to women is not expected to increase over the decade to 2001. Currently, over half of associate (57 per cent), bachelors (54 per cent) and masters (54 per cent) degrees are awarded to women and these proportions are expected to remain stable. Women account for a lower share of first professional and doctorate degrees (less than 40 per cent). The only degree type for which women's share of the total is projected to increase is doctorates, with an increase from 37 to 46 per cent of the total forecast (Table 3.2).

Figure 3.5. Projected change in number of degrees conferred 1991 to 2003



Source: Digest of Education Statistics 1993, Table 235

3.3.2 Degrees awarded by discipline

There is considerable variation by type of degree in terms of the distribution of awards by discipline (Table 3.3). Vocational fields of study dominate sub-degree level awards, with a half of all qualifications below associate degree level being in health sciences and business and management. At associate degree level liberal arts account for about a third of awards with business management, health sciences and engineering technology making up the bulk of the remainder.

Among bachelors degree recipients business and management disciplines continue to account for a high proportion of total awards (23 per cent) but liberal arts (12 per cent), social sciences (18 per cent) and education (10 per cent) also make a significant contribution. The difference between bachelors and subbaccalaureate degrees is illustrated by the higher proportion of engineering graduates among the former compared to the prominence of engineering technology among the latter.

Table 3.3 Per cent distribution of awards by field of study 1991

Subject	< 4 year non-degree award (%)	Associate degree (%)	Bachelors degree (%)	Masters degree (%)	PhD (%)
Business/management	25.0	21.4	22.8	23.3	3.2
Education	0.4	1.6	10.1	26.4	17.0
Engineering	0.1	0.5	5.6	7.1	13.4
Engineering technology	17.5	10.3	1.6	0.3	0.0
Foreign languages	0.2	0.1	1.1	0.6	1.3
Health sciences	25.5	14.7	5.4	6.3	4.1
Home economics	5.6	2.3	1.4	0.6	0.7
Liberal arts[1]	8.4	33.1	12.4	7.8	10.0
Science and maths[2]	3.2	2.4	8.7	6.8	25.5
Social sciences[3]	3.3	1.9	18.3	12.0	17.5
Unclassified	4.0	4.1	1.2	2.5	1.9
Other	6.9	7.7	11.3	6.3	5.4
Total	100.0	100.0	100.0	100.0	100.0

[1] Includes letters & liberal studies (humanities courses), philosophy, theology, visual and performing arts
[2] Includes computer science, physical sciences and life sciences
[3] Includes social science and psychology

Source: Adapted from Digest of Education Statistics 1991, Table 237 and 240

Over the past twenty years the distribution of bachelors degrees by field of study has changed. The main change has been an increase in vocationally oriented degrees such as business, administration and management and declines in more traditional subjects such as social science and letters/liberal studies. For example, the proportion of all bachelors degrees awarded in business and management increased from 14 per cent in 1971 to 23 per cent in 1991. Over the same period, social sciences' share of the total declined from 19 to 11 per cent and letters/liberal studies from eight to seven per cent.

In the 1971 to 1981 period the disciplines with the largest absolute growth were business and management (up 84,000), health sciences (up 38,000), engineering (up 18,000) and computer science (up 13,000). The pace of growth in these disciplines has since subsided and between 1986 and 1991 the number of degrees awarded in business disciplines increased only moderately (by five per cent) while the other fields experienced an absolute decline. In contrast, formerly declining fields such as social science and education have undergone a resurgence, with increases of 33 and 27 per cent respectively in the 1986 to 1991 period (*Digest of Education Statistics 1993*, p.166).

A more consistent trend has been the stagnation and decline in natural science subjects. The proportion of all bachelors degrees awarded in these disciplines remained static between 1971 and 1977 (at ten per cent) and has been declining since. These disciplines now account for less than seven per cent of all bachelors degrees (*Condition of Education 1992*, Table 28-2).

One explanation for these changes is that they appear to be related to the increasing proportion of degrees awarded to women. In 1991, 54 per cent of bachelors degrees were conferred on women compared to 43 per cent in 1971. Recently, the fields in which the greatest expansion occurred were those with the highest proportions of women, whereas the more male dominated fields either contracted or experienced lower levels of growth (Table 3.2; Digest of Education Statistics, 1992, p.166-67).

Table 3.4 Bachelors degree fields of study: per cent change 1986 to 1991 and per cent women (selected subjects)

Subject	No degrees 1991	% change 1986 to 91	% women 1991
Area/ethnic studies	4,623	51.8	59.8
Psychology	58,451	44.3	72.6
Liberal studies	26,692	38.6	59.1
Multidisciplinary studies	21,653	37.9	56.8
Social science	124,893	33.3	45.1
Education	111,010	27.3	78.9
Business and management	249,960	5.0	47.2
Life sciences	39,530	2.6	50.9
Mathematics	14,661	−10.1	47.2
Engineering	61,632	−19.3	15.4
Physical sciences	16,344	−24.8	31.6
Computer science	25,083	−40.1	29.3
All subjects	1094,538	10.8	53.9

Source: Digest of Education Statistics 1993, Table 242 and 240

The relative or absolute decline of some disciplines may also be related to the economic context. The low growth or decline in the number of bachelors degrees awarded in business and management, engineering and computer science is likely to be a reflection of the recent recession. These degrees are more vocationally oriented than others and the business downturn of the late 1980s may have discouraged students from taking degrees in such occupationally specific subjects. In particular, the contraction of employment in defence related industries will have reduced the demand for engineers and computer scientists.

The number of graduates has not declined for all vocationally oriented degrees, however. Education has been an expanding field over the past five years which suggests that students may be opting into public sector vocational fields as an alternative to subjects leading to employment in the more volatile private sector.

3.4 Summary

The US has a highly qualified population with a quarter of adults having a post-secondary qualification. Among those with such qualifications, a half have bachelors degrees and an additional 30 per cent have associate degree or vocational qualifications.

The supply of highly educated labour has increased dramatically in the past 30 years. The number of bachelors degrees awarded has more than doubled since the 1960s and the proportion of adults with four or more years of college has risen to 21 per cent.

The number of associate degrees awarded has also increased markedly and they now account for a quarter of all degree level qualifications.

Over the last twenty years there has been a shift in the proportion of bachelors degrees awarded in 'traditional' degree subjects such as social science, natural science and liberal studies toward more vocational degrees such as business and management, engineering and computer science. In recent years, however, the number of degrees awarded in these latter disciplines has failed to keep pace with total output.

The impact of these changes in supply on the labour market for new graduates cannot be understood in isolation from the demand context. Chapter 4 outlines the trends in the demand for graduates over the past thirty years.

4. The Demand for US Graduates

4.1 Introduction

This chapter will explore indicators of demand for graduates in the US. The main point which emerges from the analysis is that the economic context within which the expansion in the supply of graduates takes place is crucial to understanding the effect on the labour market. In the US, the initial period of rapid increase in the supply of graduates, coincided with a period of marked expansion in the demand for professional, technical and managerial workers. In the UK the period of rapid expansion in higher education has coincided with a period of recession and reduced employment. For this reason, it cannot be assumed that the changes identified in the US labour market for graduates as supply initially expanded will be replicated in the UK.

What is clear, however, is that the supply of graduates in the US has continued to expand to the present. Given the similarity between the current US economic context and that in the UK, an analysis of recent trends within the US may provide some indication of the kinds of changes we may experience in this country.

The level of demand for graduates can be measured in two distinct ways: it can be assessed relative to the demand for other kinds of workers or in more absolute terms. These different perspectives result is two very different pictures of the labour market for graduates in the US. Relative to other categories of worker, graduates remain advantaged in the US labour market. In absolute terms, however, their position is less assured.

This chapter is divided into three main sections. The first assesses the overall labour market position of graduates in the US, providing information on their occupational distribution, earnings, labour force participation and unemployment rates.

Section 4.3 goes on to look at trends in the labour market for graduates. The pattern of demand for graduates in the US can be categorised into three distinct periods. In the 1950s and 1960s demand kept pace with a rapidly expanding supply. This was followed by a more difficult decade in which the returns to higher education appeared to decline and supply exceeded demand. In the 1980s, however, changes in the structure of the economy have led to a resurgence of rising returns to education, and wage premiums for college graduates have increased. This is largely due to the declining position of less well-educated workers and in absolute terms the labour market for college graduates remains difficult.

Section 4.4 examines two issues relating to the graduate labour market which emerged in the 1970s: those of credentialism and perceived underutilisation of graduates.

4.2 The labour market position of graduates

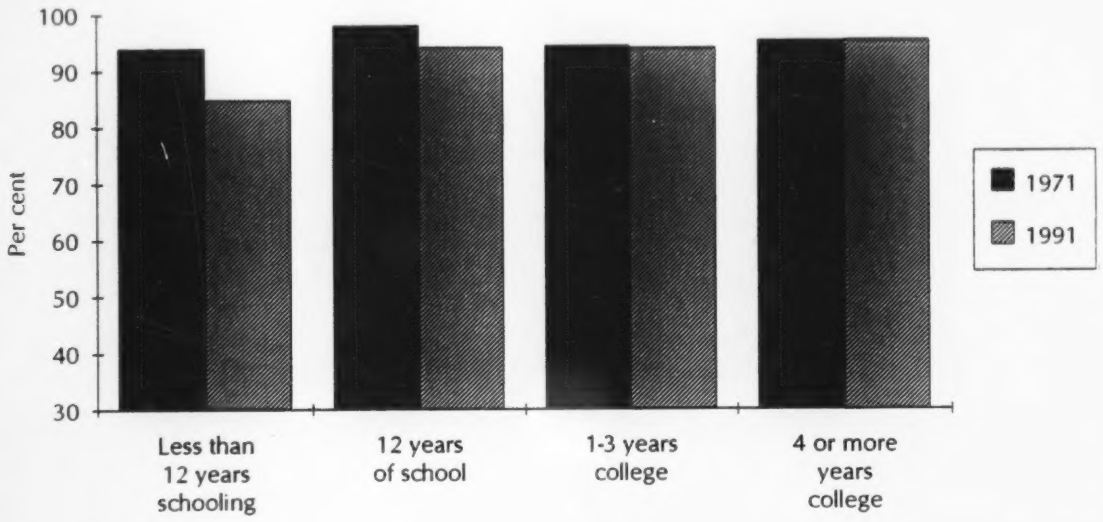
The unequivocal message on the labour market position of graduates is that despite the rapid increase in supply they continue to enjoy a substantial advantage in the labour market relative to non-graduates. This is reflected in a range of related indicators including labour force participation rates, unemployment, occupational distribution and income.

4.2.1 Labour force participation by educational level

Labour force participation is related to educational attainment. Among the population aged 25 and over labour force participation rates range from 41 per cent for those who have not completed high school to 81 per cent for those with four years or more of college (US Bureau of the Census, 1992b, Table 6).

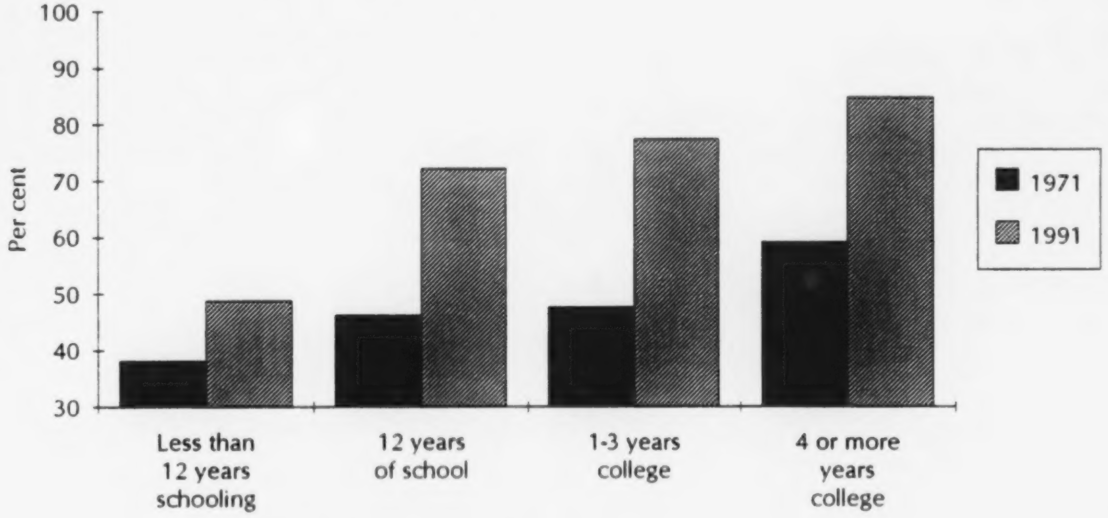
Data for the younger age groups, which include new graduates and are therefore more relevant to this study, reveal a similar situation. Figures 4.1 and 4.2 provide information on the proportion of men and women aged 25 to 34 who are in the labour force by years of schooling completed.

Figure 4.1. Labour force participation rate of men aged 25 to 34 by educational level: 1971 and 1991



Source: Condition of Education 1992, Table 30-1

Figure 4.2. Labour force participation rate of women aged 25 to 34 by educational level: 1971 and 1991



Source: Condition of Education 1992, Table 30-2

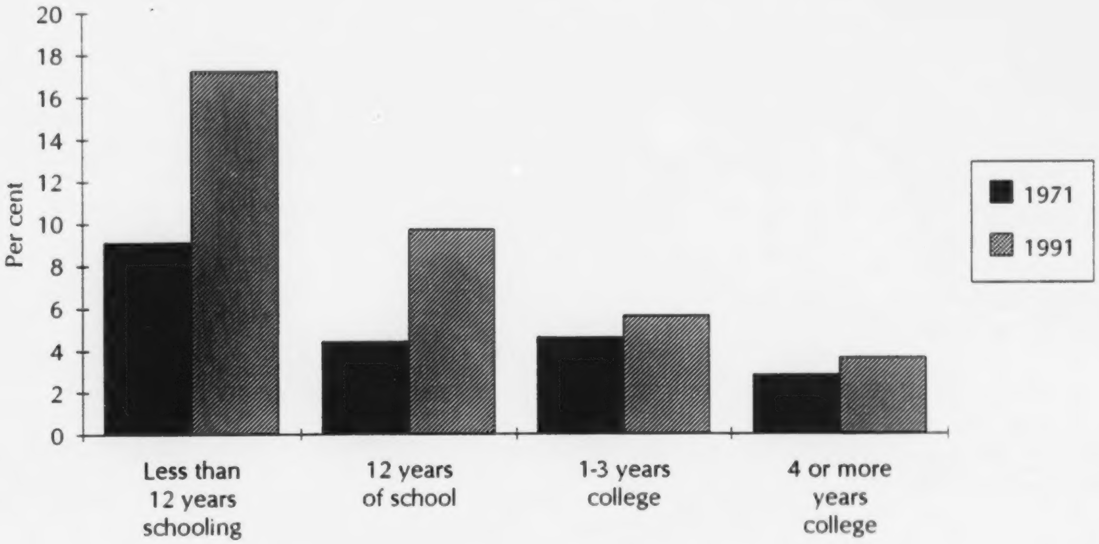
Among men, those with a college education have the highest rates of participation (94 per cent for those with one to three years of college and 95 per cent for those with four or more years of college) and have maintained this high level over the 1971 to 1991 period. Male high school graduates have similarly high rates of participation but have experienced a slight decline over the two decades to 1991 (from 98 per cent to 94 per cent). Men who did not graduate from high school had similar rates of labour force participation to all other groups in 1971 but by 1991 were considerably less likely to be in the labour force than other groups. Their labour force participation rate declined from 94 per cent in 1971 to 85 per cent in 1991.

The pattern of higher labour force participation among those with higher educational qualifications also holds for women aged 25 to 34. In 1991, the labour force participation rate among women with four or more years of college was 85 per cent. It was somewhat less among those with one to three years of college (77 per cent) and high school graduates (72 per cent), but considerably lower among women who had less than 12 years of school (49 per cent). The main difference between women and men is that the former have increased their labour force participation rate regardless of level of education, with particularly substantial increases among high school graduates (from 46 to 72 per cent), those with one to three years of college (from 48 to 77 per cent) and those with four or more years of college (from 59 to 85 per cent).

4.2.2 Unemployment by educational attainment

Figures 4.3 and 4.4 show the unemployment rates for men and women aged 25 to 34 by years of schooling. Unemployment is clearly related to educational attainment, with a college education associated with lower rates of unemployment. The group most affected by unemployment is workers with less than 12 years of high school (*ie* those who did not graduate from high school).

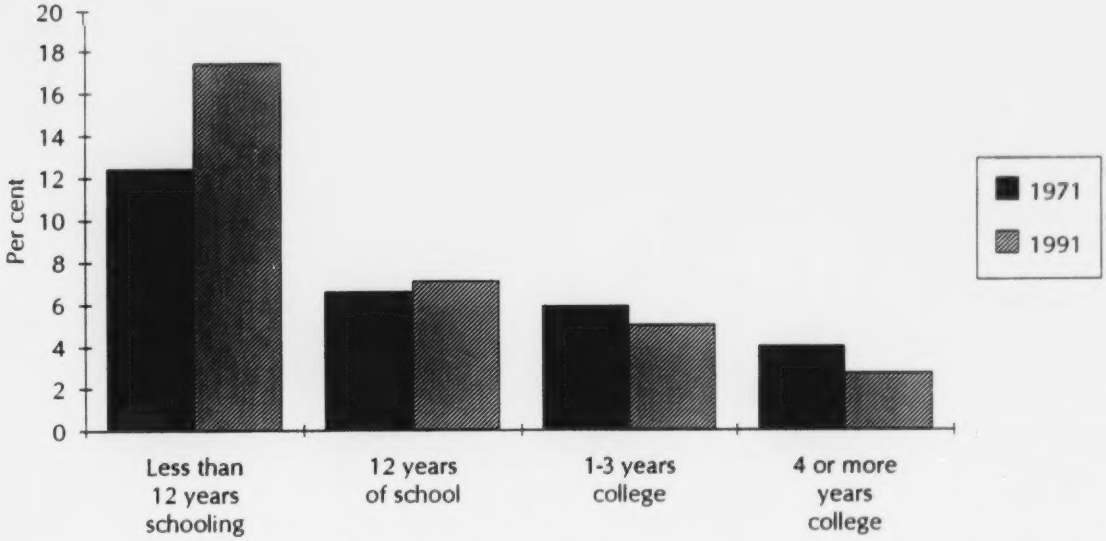
Figure 4.3. Unemployment rate of men aged 25 to 34 by educational level: 1971 and 1991



Source: Condition of Education 1992, Table 30-5

The increase in the supply of graduates has not resulted in substantially higher unemployment among those with a college education. Indeed, the unemployment rate for women with four or more years of college declined over the 1971 to 1991 period (from four per cent to 2.7 per cent). That for men did increase slightly, from 2.8 per cent to 3.6 per cent. For men, however, the largest increase has been in the proportion of those with no college education who are unemployed. Among men with 12 years or less of schooling unemployment has about doubled: it has risen from 9.1 and to 17.2 per cent among those not completing high school and from 4.4 to 9.7 per cent among high school graduates. Among women, high school graduates have been less affected by unemployment but those not completing school have experienced a substantial increase, from 12.4 per cent in 1971 to 17.4 per cent in 1991 (*Condition of Education, 1992,* p.274)

Figure 4.4. Unemployment rate of women aged 25 to 34 by educational level: 1971 and 1991



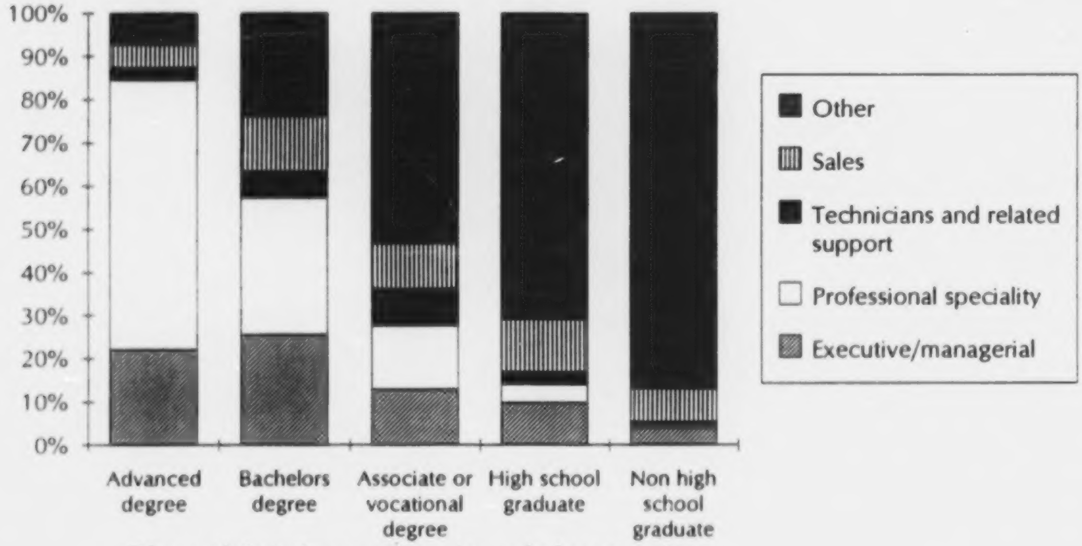
Source: Condition of Education 1992, Table 30-6

4.2.3 Occupational distribution

There is also a clear relationship between occupation and degree attainment. The two higher status occupations, executive, administrative and managerial and professional speciality, account for a higher proportion of people with advanced and bachelors degrees than those with sub-degree qualifications and high school diplomas. For example, 57 per cent of bachelors degree graduates work in professional and managerial occupations compared to just 14 per cent of high school graduates and less than five per cent of those who have not graduated from high school (Figure 4.5).

In accordance with what would be expected from this occupational distribution, service sector industries, in particular financial and professional service industries, education and welfare, and government have a higher than average proportion of employees who are college graduates. For example, among workers with one to ten years experience, an average of 30 per cent are college graduates. In education this proportion rises to 79 per cent, in financial and professional services to 41 per cent, and in government to 40 per cent (Murphy and Welch, 1989, Table 3).

Figure 4.5 Occupational distribution by educational level: labour force aged 18 to 64, 1990



Other = adminstrative support, service, and other occupations

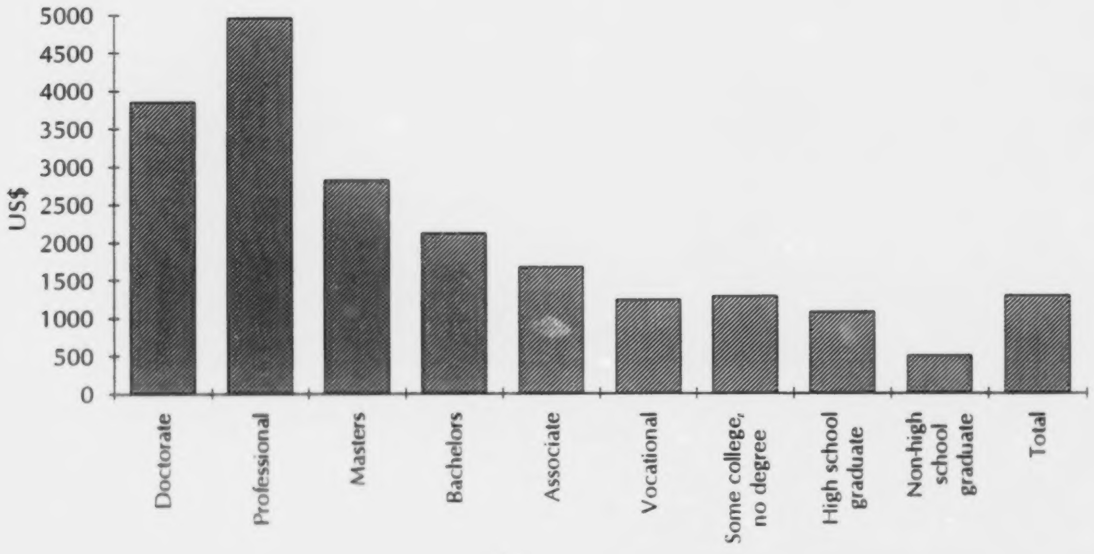
Source: US Bureau of the Census, 1992a, Table D)

The advantages of sub-degree level qualifications are also clear. Relative to high school graduates, those with an associate degree or vocational qualification are more likely to work in executive or administrative and professional speciality occupations (28 per cent versus 14 per cent). They also account for a disproportionate share of those working in technician and related support occupations. Less than one in ten of workers in the labour force have associate degree or vocational qualifications and yet people with these qualifications account for 20 per cent of all in technical and related support occupations.

4.2.4 Salaries and education

Labour force participation rates, unemployment and occupation are different measures of labour market status. The fact that graduates are more likely to be in the labour force, to be in employment and to work in high status, better paid jobs all contribute to their overall economic well-being as measured by earnings. Figure 4.6 provides information on average monthly earnings by educational level for 1990. It shows that earnings increase with educational attainment, with the exception that doctorate degree holders earn less on average than those with a professional degree (*ie* in medicine, law *etc.*).

Figure 4.6. Average monthly earnings by educational level: spring 1990



Source: US Bureau of the Census 1992a, Table A

It is also the case that in the 1980s earnings increased faster among those with a college education. Between 1983 and 1990, the earnings of full-time workers with four years or more of college increased by 37 per cent. This was considerably higher than the 26 per cent increase for high school graduates but only slightly more than that for workers with one to three years of college (34 per cent) (Hecker, 1992, Table 3).

For bachelors degree holders, there were substantial variations in monthly earnings by field of degree. Engineering ($2,953), mathematics and statistics ($2,569), agriculture and forestry ($2,537) and economics ($2,528) graduates commanded the highest earnings and home economics ($906), education ($1,532), liberal arts/humanities ($1,592) and english/journalism ($1,607) graduates the lowest (US Bureau of the Census, 1992a, Table B).

It is also the case that graduation from an elite institution (Harvard, Yale, Princeton, Stanford *etc.*) gives a clear advantage in terms of impact on earnings. One study found that new graduates from elite universities had a 15 per cent greater probability of earning at least $20,000 a year (in 1986 $) and an average yearly income advantage of $2,100 (at a time when the mean income of respondents was just over $15,000 a year) (Kingston and Smart, 1990, p159.)

Among those with advanced degrees, the highest monthly salaries were earned by those with medicine and dentistry ($5,651) and law ($5,608) degrees. At the other end of the scale, the post-graduate degrees with a lower earnings potential are similar to the less well rewarded bachelors degrees: english and journalism ($2,055), religion and theology ($2,073) and the liberal arts and humanities ($2,383) (US Bureau of the Census, 1992a, Table 4).

Data on earnings for those with associate degrees or vocational qualifications are not published separately. It is the case, however, that among the subjects with a large proportion of degrees awarded at the associate or vocational levels mean salaries are lower. For example, employees qualified in vo-tech studies and health technician subjects command lower earnings than the average for all those with post-secondary qualifications. Among subjects where the majority of degrees are awarded at the associate or vocational levels, the highest mean earnings went to those with qualifications in police science ($2,331) and the lowest to those with vo-tech studies qualifications ($1,572) (US Bureau of the Census, 1992a, Table 4),

Earnings change over the 1987 to 1990 period reflects changes in the supply of and demand for graduates in particular fields. The earnings of those with a bachelors degree in business and management declined in this period. The economic recession in combination with a continued increase in the number of business and management bachelors degree holders seems to account for this. People with degrees in physical and earth sciences and nursing, pharmacy and technical health degrees experienced the highest earnings increases. As noted in Chapter 3 above, the supply of scientifically qualified graduates has not kept pace with the overall growth in bachelors degree output which may account for some of this relative advantage. In addition, health care has been a rapidly expanding business in the US and it is increasingly common for health care specialists not qualified as doctors to have degree level qualifications.

National data show that due to their increased labour force participation, lower unemployment rates and favourable position in the occupational hierarchy, graduates receive higher earnings in the labour market than workers with less schooling. It has also been the case that the economic benefits of college tend to increase over an individuals's life cycle. The private rate of return to investment in schooling is a hotly debated topic but studies show that it compares favourably to other investment activities (Rumberger, 1984, p.434). One analysis suggests that when adjusted for ability differences, the private rate of return to a bachelors degree (versus a high school diploma) averages between nine and 11 per cent (Pascarella and Terenzini, 1991, p.531).

4.3 Trends in the demand for US graduates

Section 4.2 has shown that graduates continue to occupy a relatively favourable labour market position. This part of the report focuses on changes in the labour market for college graduates in the post-war period. It is divided into four main subsections each of which are concerned with a different time period. Throughout, data referring specifically to new graduates is distinguished from those used to assess the wider demand for all graduates.

4.3.1 The 1950s and 1960s

The early post-war period was characterised by a buoyant labour market for new college graduates despite the marked expansion in supply. The economy was expanding very rapidly, in real terms GNP increased almost 50 per cent from 1960 to 1970, and the associated increase in employment favoured high and middle level occupations demanding a more skilled workforce (Rumberger, 1984, p.439).

In particular, the 1950s and 1960s were decades of unusually rapid expansion in the demand for professional and technical workers. Professional and technical occupations increased their share of total employment from 18 per cent in 1950 to 25 per cent in 1970 (Carnegie Commission on Higher Education, 1977, Table A1). This stemmed from two main sources: a sharp rise in public sector employment and a pronounced increase in the proportion of GNP expended on research and development between 1952 and 1964 — resulting in high levels of demand for scientists and engineers (Rumberger, 1984; Gordon, 1974, p.3). The number of salaried managers also increased rapidly in the 1950s and 1960s, and the percentage of this group who had completed four or more years of college also rose (among men, from 16 per cent in 1950 to 26 per cent in 1970) (Gordon, 1974, p.39).

Analysis of data on college graduates with limited work experience[1] (who are assumed to be new graduates) shows that in the 1960s an increasing proportion found jobs in professional and managerial jobs. These occupations accounted for 71 per cent of inexperienced college graduates in 1960, a figure which rose to 76 per cent in 1970 (Table 4.1).

Studies of the employment of college graduates point to two distinct dimensions of the increased demand for highly qualified labour: that occurring through occupational growth requirements (*ie* changes in the number of people working in particular occupations) and that attributable to occupational upgrading (*ie* an increase in the educational level of people within occupations) (Gordon, 1974; Adkins, 1974). According to one estimate, in the 1950s and 1960s about 60 per cent of the increase in college graduate employment was attributable to occupational growth requirements and the remaining 40 per cent to occupational upgrading (Gordon, 1974, p.55).

Economic expansion and changes in the occupational structure in the 1950s and 1960s meant that despite the enormous increase in enrolment in higher education and in the number of college graduates in the early post-war period, the demand for college graduates was also rising rapidly, at least until about 1969. Young people emerging from higher education had little difficulty in obtaining the kinds of jobs they sought. College graduates fared well in the labour market and at times, especially in certain occupations such as engineering, demand was rising more rapidly than supply (Gordon, 1974, p.29).

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[1] Workers with four years of college education and five years or less of experience in the civilian labour force.

Table 4.1 Employment status of inexperienced four-year college graduates (percentages)

	1960	1970	1980
Occupational group			
Professional jobs	66.3	70.0	47.5
Managerial jobs	4.8	5.9	14.4
Sales jobs	9.9	6.2	7.8
Clerical jobs	12.5	10.6	15.1
Other jobs	6.5	7.3	15.2
Total	**100.00**	**100.00**	**100.00**
Sector and industrial group			
Private sector	55.6	51.0	72.3
Manufacturing	18.2	12.4	14.4
Wholesale and retail trade	8.8	7.0	15.3
Services	18.4	20.1	25.3
Other industries	10.2	11.5	17.3
Public sector	40.8	47.0	25.0
Federal	–	4.1	5.8
State	–	10.4	5.2
Local	–	32.5	14.0
Self-employed	3.6	2.0	2.7
Total	**100.00**	**100.00**	100.00
Relative earnings[1]	165	160	158

[1] Ratio (× 100) of mean total annual earnings of four-year college graduates to earnings of high school graduates.

Source: Rumberger 1984, p.442

These changes were reflected in the relative income levels of college graduates. Ratios of median income of college graduates to median income of high school graduates and all persons aged 25 and over rose for both sexes between 1949 and 1959 before stabilising somewhat in the latter half of the 1960s (Table 4.2).

The wage premium for graduates (per cent difference between graduate earnings and those of high school leavers) increased throughout the 1960s, reaching almost 60 per cent by the end of the decade (Murphy and Welch, 1989, p.19).

Source: Gordon, 1974, p.48

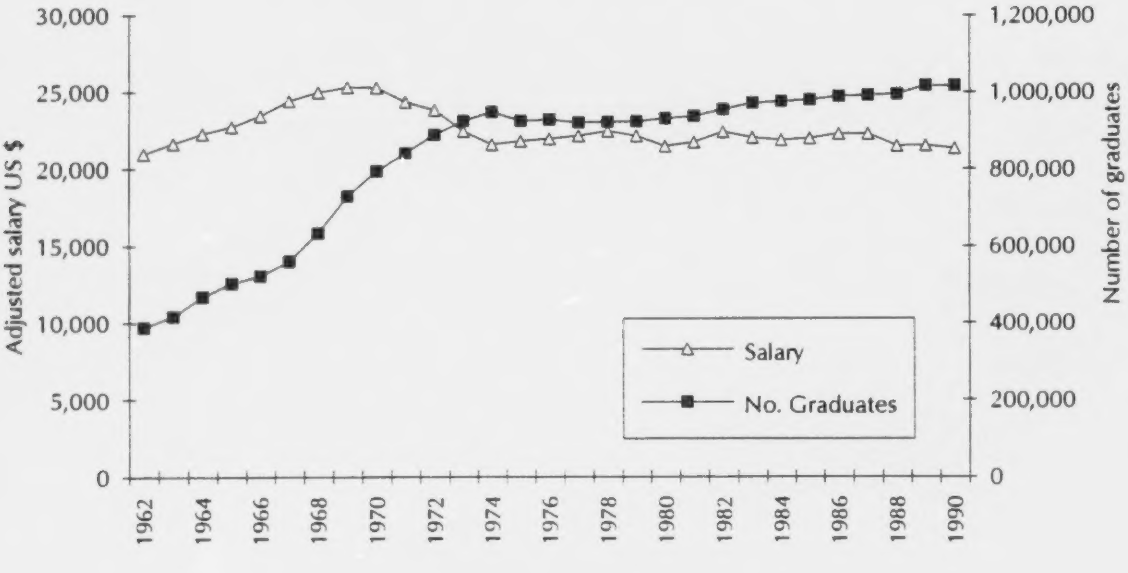
Table 4.2 Ratio of college graduate incomes to all persons and high school graduates 1949 to 1969

	Men		Women	
	All men	High school graduates	All women	High school graduates
1949	1.63	1.34	2.13	1.47
1959	1.66	1.41	2.45	1.72
1969	1.62	1.45	2.38	1.80

Source: Gordon, 1974, p.48

The favourable labour market position of new graduates in the 1960s is borne out by data on starting salaries. Real salaries for new graduates increased steadily throughout the 1960s (rising by 21 per cent between 1962 and 1969) before peaking in 1969 and declining in the early 1970s (Figure 4.7).

Figure 4.7. Adjusted[1] starting salaries and number of new graduates 1962 to 1990



Source: Connell (1991)

[1] Reported salary offers adjusted by the Consumer Price Index (CPI) for the period in which the offer was made. The average offer for the academic year was divided by the average CPI for the year in which the recruiting period ended. In the CPI used for this adjustment 1982-84 = 100.

The 1950s and 1960s constituted a heyday for college graduates and a number of observers stress the uniqueness of the period. New college graduates entering the labour market found better jobs than graduates either before or after that period (Rumberger, 1984, p.443; Gordon, 1974; Smith, 1986).

4.3.2 The 1970s

The job market for new graduates changed considerably in the 1970s. This was characterised by a number of factors similar to the current situation in the UK, including:

- national data showing a sharply rising proportion of graduates in occupations in which few jobs require a degree for entry
- a reduction in the number of employers recruiting on campus
- media reports of 'college graduates driving taxis and waiting tables' (Hecker, 1992, p.13).

The main reason for this turnaround in the fortunes of college graduates was the drastic decline in public sector employment opportunities within a context of continually expanding supply of graduates. Almost a half of all young college graduates were employed in the public sector in 1970 whereas by 1980 this proportion had declined to one quarter (see Table 4.2). As a result, graduates were increasingly reliant on the private sector for jobs. There were generally fewer high level positions available in this sector and so an expanding number of graduates found themselves chasing a more limited supply of high level jobs. Professional employment opportunities declined most markedly over the decade to 1980 and if this had not been partially offset by growth in managerial positions the situation for young graduates would have been worse (Rumberger, 1984).

In the 1970s, it is evident that the kinds of jobs undertaken by new graduates changed. Over the decade, the proportion of inexperienced graduates in professional and managerial occupations declined, from over three quarters in 1970 to less than two-thirds in 1980 (Table 4.2).[2] Both women and men were similarly affected by this trend. Women, especially black women, were particularly affected by the limited expansion in teaching positions in the 1970s. Although the number finding work in managerial and sales jobs grew, an increasing proportion found themselves in clerical and other jobs. By 1980 clerical jobs accounted for a greater share of young female college graduates than had been the case 20 years earlier. Overall, women graduates in 1980 were worse off than their counterparts in 1960. The situation in 1980 can be summed up as follows:

> '... both white and black women college graduates remain more likely to hold professional and clerical jobs and white and black males remain more likely to hold managerial and sales jobs. All four groups appeared to gain from growing employment opportunities in the 1960s and lose from declining opportunities in the 1970s. But women appeared to lose more than men.' (Rumberger, 1984, p.446)

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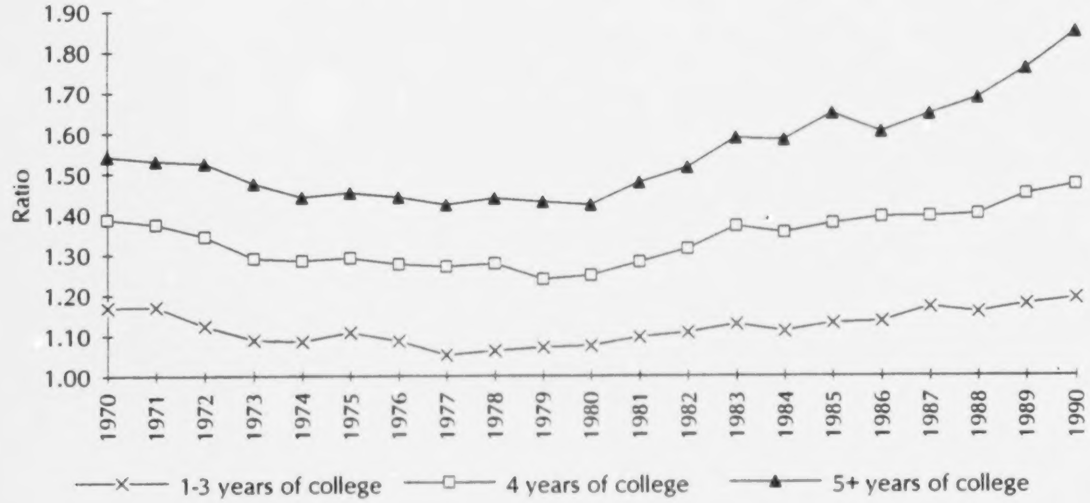
[2] The issue of underutilisation of college graduates is discussed more fully in section 4.4.2.

This turnaround in the job market was reflected in graduate earnings. Real earnings for all categories of workers declined or remained static in the 1970s but of major concern to the graduate labour market was the recognition that the earnings of college graduates declined relative to those of high school leavers. Figures 4.8 and 4.9 chart the changing ratio of median income of college educated workers to high school leavers for men and women. It is clear that the changes in graduate supply trends outlined above were, in the 1970s, associated with declining relative incomes for workers with a college level education. In the 1980s, this downward trend was halted and the relative earnings of all categories of college educated workers rose.[3]

Figure 4.8. Ratio of median income of male college educated workers to male high school graduates: 1970 to 1990



Digest of Education Statistics 1992, Table 367

These changes were reflected in the starting salaries for new graduates which declined in the early 1970s and have since remained static. Real salaries peaked at $25,288 in 1969 and then declined to lows of $21,535 in 1974 and $21,429 in 1980. This pattern shows the lagged effect of an increase in the supply of graduates with starting salaries beginning to fall off before the downturn in the rate of increase in bachelors degree awards (Figure 4.7).

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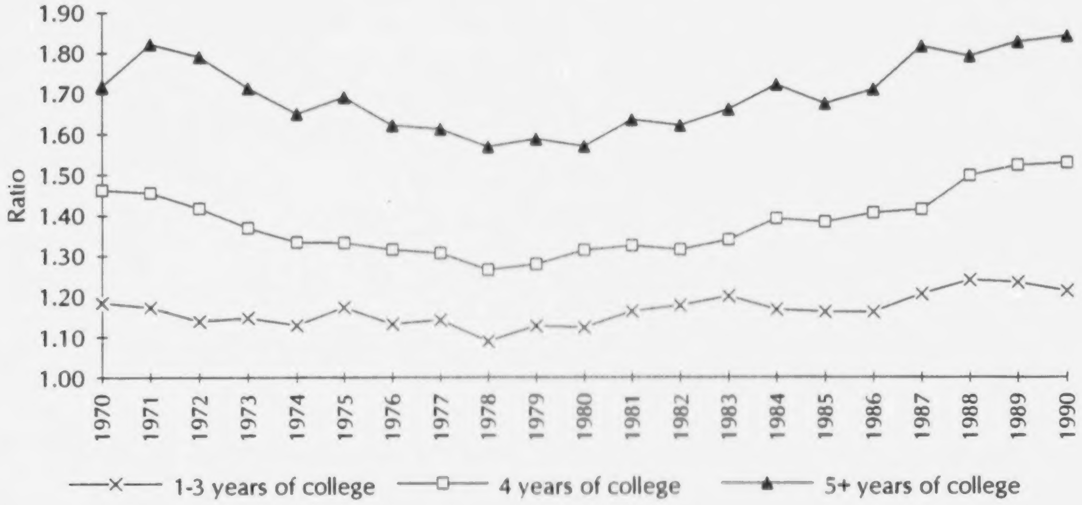
[3] One of the problems with using years of college level education as a proxy for degree attainment is that it is increasingly the case that students in the US are taking longer than four years to obtain a bachelors degree. This rise in the real incomes of those with five or more years of college cannot therefore be assumed to represent the economic return to post-graduate education.

Figure 4.9. Ratio of median income of female college educated workers to high school graduates: 1970 to 1990



Source: Digest of Education Statistics 1992, Table 367

The trend toward apparently declining real incomes for college educated workers and the increase in the number entering lower level jobs resulted in the 'overeducated' American debate (see Smith and Welch, 1978 for a summary). A number of consequences of the changing position of college graduates were predicted including:

- a lowering of the value of a college degree and consequent decline in enrolments (Freeman, 1986)
- increased social instability and political discontent as the expectations of a highly educated workforce were constantly frustrated (Kramer, 1986; Burris, 1983)
- rising job dissatisfaction leading to higher rates of absenteeism and turnover, lower productivity and poor health (Tsang, 1987).

There is so far little or no evidence for the first two predictions and while there does appear to be some link between holding a job which does not fully utilise one's skills and job satisfaction there is no suggestion of the sort of disaffection and behavioural pathology originally theorised (Tsang and Levin, 1985; Tsang, 1987; Levin, 1987).

While there is little doubt that the labour market for graduates was less buoyant in the early 1970s than had been the case in previous decades, this reversal needs to be put into context. The 1960s, in particular, appear to have been anomalous in that college level employment opportunities expanded especially rapidly and a 'golden era' emerged. In the 1970s this became the benchmark by which the labour market for college graduates was measured and commentators failed to recognise that the conditions driving expansion in the 1960s were extremely unusual. In effect, by 1980 the outlook for new college graduates was similar to the situation their counterparts faced in 1960 (Rumberger, 1984, p.451).

It was also the case that in the 1970s the baby boom cohort entered the labour market (see Chapter 3) at a time when the overall economy was depressed relative to the recent past. The labour market was therefore forced to assimilate the largest and most educated class of new entrants in its history just as the business cycle deterioration made that task more difficult (Smith, 1986, p.16). Given this situation, Smith goes on to argue that 'one may be more impressed by the economy's ability to absorb these stocks than by the difficulties encountered' (p.26).

There are striking similarities between this situation and that we are currently facing in the UK. In the UK, the expansion in higher education has coincided with an economic downturn and organisational restructuring, both of which have led to a decline in graduate recruitment. Commentators on the graduate labour market look back on the boom years of recruitment in the late 1980s as a kind of 'golden era' similar to that in the US of the 1960s.

4.3.3 The 1980s

The period from 1980 to the present has been more paradoxical. The proportion of graduates in jobs not traditionally requiring a degree or unemployed has risen slightly and the number in this situation has increased by 61 per cent (Table 4.4; Hecker, 1992, p.15). Almost 20 per cent of graduates are underutilised according to BLS definitions. In addition, periodic surveys of new graduates show that the proportion indicating that a four year college degree was not required for their job increased in the late 1980s, from 37 per cent in 1985 to 44 per cent in 1991 (National Center for Education Statistics, 1993, p.18). These trends suggest a continued deterioration in the situation for college graduates.

At the same time, however, the earnings of graduates increased rapidly, especially in relation to those of high school leavers, suggesting buoyant demand for highly skilled workers. In 1979, male college graduates earned 33 per cent more than male high school graduates and female college graduates earned 41 per cent more than female high school graduates. By 1990, these premiums had risen to 60 per cent and 66 per cent respectively. The median annual income for full-time workers 25 years of age and older increased the most for women college graduates and least for men with less than four years of high school (Hecker, 1992, p.16).

Among men and women graduates with one to five years of work experience (*ie* new graduates), relative wages[4] increased from 1.3 in

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[4] Ratio of college graduate hourly wages to those of high school graduates.

1979 to 1.7 in 1989 (Murphy and Welch, 1992, Table V). The relative wages of graduates with up to five years work experience were higher than those for any other experience group by 1989, showing especially buoyant demand for new college graduates relative to new high school graduates.

There are a number of potential explanations for the discrepancy between employment data and earnings data. They include:

- skills mismatch, with too few graduates in some fields (*eg* engineering) and too many in others (*eg* the humanities)
- inaccuracies in the employment data
- declining educational preparation which makes some graduates ineligible for graduate level jobs.

According to Hecker, there is little or no evidence for any of these explanations. Much of the evidence suggests that these patterns have less to do with the college graduate labour market and more to do with declining earnings among high school leavers, especially men (Hecker, 1992; Murphy and Welch, 1993; Levy and Murnane, 1992). This trend occurred within a context of changes in the structure of the US economy. Millions of the best-paid jobs for those with a high-school diploma or less disappeared in the 1980s. In particular, the number of well-paid manufacturing and mining jobs in unionized industries peaked in 1979. These industries have traditionally provided high earnings for workers without college degrees, especially men. The growth industries were retailing; finance, insurance, and real estate; and business, professional and health services. In addition to their demand for college graduates, these industries offered many jobs for high school graduates, especially women, but most of them paid less than those in manufacturing and mining.

At the same time an increasing proportion of jobs in the US economy were in executive, administrative and managerial, professional and technical, and marketing and sales occupations. In each of these occupations the increase in the number of jobs between 1975 and 1990 was greater than the average for all occupations. For example, total employment grew by 37 per cent in this period whereas employment in executive *etc.* occupations expanded by 83 per cent, in technical occupations by 76 per cent and professional occupations by 60 per cent (Silvestri and Lukasiewicz, 1991, Table 1). These occupations are those with a higher than average proportion of college graduates.

Shifts in the structure of the US economy can account for some of the rise in relative graduate earnings. It is also the case, however, that an increasing proportion of the workforce within industries and occupations are college graduates. Changes in classification systems make comparisons difficult but, over the past ten years, the proportion of total employees who are graduates in, for example, managerial occupations has risen from about a third to a half for men and from a quarter to approaching 40 per cent for women (Smith, 1986, Tables 2 and 3; US Bureau of the Census, 1992b, Table 7).

In industry, between 1968 and 1988, the growth in the fraction of college labour in high skilled manufacturing, transportation and utilities, the retail trade, professional and finance industries and the government sector was most significant. In all the major industry groups, however, the proportion of college graduates increased, and this within-industry change accounted for 80 per cent of the increase in college graduate employment (Murphy and Welch, 1993, p.124).

In the 1980s, people with at least some college education took a growing proportion of the best paying jobs. College graduates and those with one to three years of college had greater earnings increases than high school graduates in every occupational group and in almost every individual occupation (Table 4.3). College educated workers are likely to have replaced well-paid high school graduates by either getting a greater share of promotions or taking more jobs with employers paying the highest salaries.

Table 4.3 Increases in earnings by occupation and level of education 1983 to 1990 (per cent change)

Occupation	**Four years of high school**	**One to three years of college**	**Four or more years of college**
Executive, administrative and managerial	28	34	39
Professional speciality	24	37	44
Technicians	31	41	47
Sales	21	33	43
Administrative support	30	37	34
Service	30	36	45
Craft etc.	22	35	33
Transportation	21	23	34
Total	**26**	**34**	**37**

Source: Hecker 1992, Table 3

As a result of these changes, the proportion of college graduates in the top 20 of all wage earners increased between 1979 and 1990. In 1979, 38 per cent of the top earners were workers with four or more years of college and 19 per cent had one to three years of college. By 1990, those with four or more years of college had increased their share of the top paying jobs, accounting for 55 per cent of the total, whereas those with one to three years of college accounted for an slightly increased 21 per cent (Hecker, 1992, p.23).

These patterns suggest that even though there is no evidence of a general shortage of graduates in the US, highly qualified workers are paid a premium for their skills and abilities, regardless of occupation. That is, on average individuals gain by having a college degree whether there is a shortage or a surplus in the labour market (Hecker, 1992, p.23). This conclusion was echoed by the suggestion that 'a college education was once sufficient for the attainment of a good job. It is clearly no longer sufficient, but at the same time, it is all the more necessary.' (Smith, 1986, p.95).

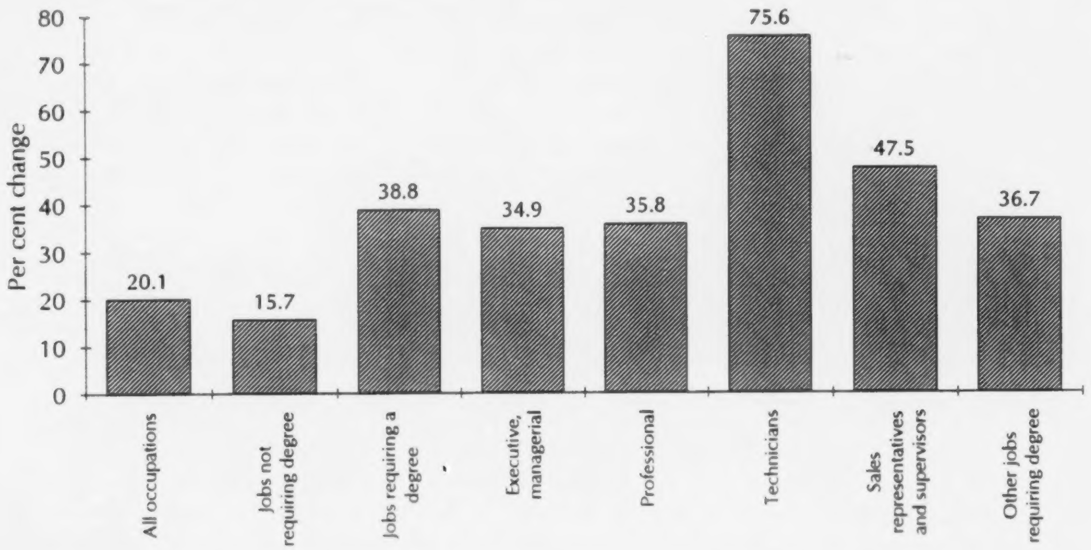
4.3.4 The future

Projections by the US Bureau of Labor Statistics indicate that graduates will face a more competitive labour market in the 1990s and early 2000s than that encountered by 1980s graduates. Changes in both supply and demand conditions are expected to account for this. Employment projections for 1990 to 2005 suggest that there will be fewer openings in jobs requiring a degree than was the case in the 1984 to 1990 period. At the same time, supply, in the form of the average number of bachelors degrees awarded, is expected to increase more rapidly than in the 1984 to 1990 period (Shelley, 1992, p.5).

As noted in Chapter 3, the number of bachelors degrees conferred is projected to continue to rise into the twenty first century. An annual average of 1.1 million new graduates are projected from 1990 to 2005, to give a total of 16.5 million over the 15 year period. This is somewhat higher than the annual average of about one million new graduates in the 1984 to 1990 period.

Projected demand is dependent on the number of new jobs created in the economy in occupations usually filled by graduates. In the 1990 to 2005 period, total employment in the US is projected to increase by 20 per cent. Employment in jobs requiring a bachelors degree is expected to grow at a considerably faster rate, by 39 per cent. Conversely, the rise in the number of jobs not requiring a degree will be much lower, 16 per cent (Figure 4.10).

Figure 4.10. Projected employment growth by job type, 1990 to 2005



Source: Shelley 1992, Chart 4

This would seem to be a relatively favourable position for college graduates. Even with the rapid projected rise in jobs requiring a bachelors degree, however, the number of college-level job openings in the 1990 to 2005 period is projected to be 914,000 per annum — less than the supply of new graduates to the market (Figure 4.11). While per annum job openings for graduates were also less than the number of new graduates in the 1984 to 1990 period, the discrepancy between supply and demand is projected to increase in the 1990s (Shelley, 1992).

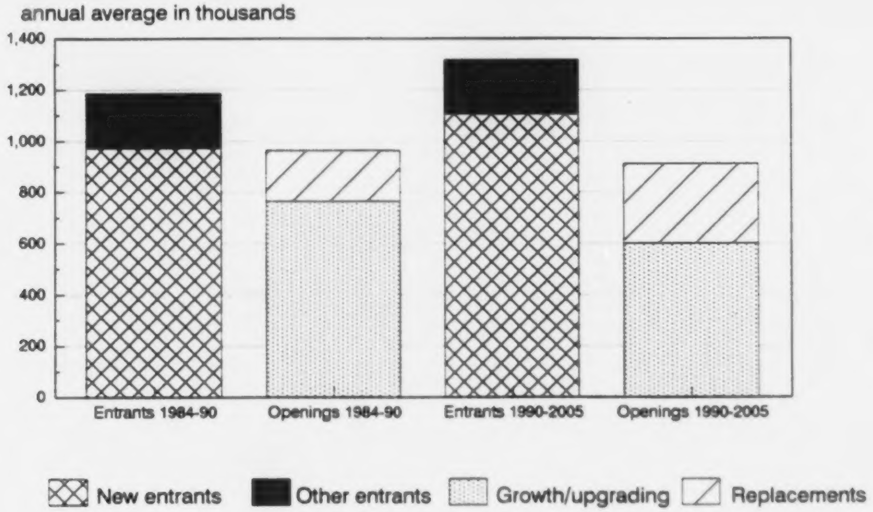
The majority of graduates are still expected to find college-level jobs, with about 70 per cent of those joining the labour force between 1990 and 2005 entering jobs which require a college level degree. This is somewhat lower than the proportion finding such jobs in the 1984 to 1990 period (80 per cent). The main implications of these trends are for non-college graduates, who may find themselves crowded out of the positions they normally fill by 'underutilised' graduates.

This rather bleak scenario is again dependent upon the contentious assumption that the skill requirements of particular jobs are unlikely to change.

4.4 Graduate labour market issues

This section looks at two issues relating to the graduate labour market which emerged in the 1970s and have been the subject of considerable debate since then: credentialism or screening and graduate underutilisation.

Figure 4.11. College graduates entering the labour force and job openings: 1984 to 1990 and 1990 to 2005 (projected)



Source: Shelley 1992, Chart 2

4.4.1 Credentialism and screening

In the 1970s it became increasingly evident that the changes in the occupational structure which had driven the demand for college educated workers in the immediate post-war period were not being sustained. In the 1950s and 1960s over half of the increase in demand for male college educated workers can be attributed to changes in the occupational structure (*ie* an increase in the proportion of all workers in higher level occupations). In the 1970s, this proportion declined to less than 20 per cent and intra-occupational changes in the level of education (*ie* occupational upgrading) became far more significant (Smith, 1986, p.90). Occupational upgrading can result from either real changes in the level of work required or a shift in entry level requirements. In the absence of evidence to suggest that the skill levels of upgraded occupations had changed dramatically, the increasing importance of intra-occupational shifts was interpreted as evidence of college graduates entering employment for which they were overqualified.

Several observers argued that entry into upgraded occupations had become dependent upon credentials which did not necessarily reflect changes in the skill requirements of the job or the productivity of workers. Much of the debate on the US labour market for college graduates in the 1970s revolved around the issues of 'credentialism' and the use of a bachelors degree by employers as a screening device for applicants (Realigns and Ulman, 1974; Perlman, 1988).[5]

A recent assessment of this debate shows that there is evidence to support the argument that college serves a screening or certification function. Obtaining a bachelors degree provides a substantial earnings bonus beyond the expected incremental increase for each additional year of college completed. Thus a bachelors degree may function as a device through which employers assign those who have it to higher paying jobs or career paths than those who do not, even if the two groups may be equally competent. Consistent with this, there is evidence that bachelors degree recipients receive preferential treatment in the form of higher earnings unrelated to greater productivity. Individuals who are not college graduates are disproportionately under-represented in high status, high paying jobs even when they are similar to graduates in intellectual ability and other traits. The effect of screening is likely to differ by field with actual skills imparted in some programs (*eg* engineering) and screening a more effective explanation for the increased earnings among those in less vocational fields such as sociology (Pascarella and Terenzini, 1991, p.505-530).

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[5] Perlman distinguishes clearly between screening, in which the employer uses education, often a college degree, as evidence of superior ability which can be translated into higher productivity, and credentialism, whereby people without the requisite qualifications are excluded from particular jobs not because they will be less productive but because they lack an entry qualification. Screening uses education as evidence of expected job productivity whereas credentialism demands a particular level of education regardless of its effect on productivity (Perlman, 1988).

What has not been addressed in the debate is the extent to which screening or credentialism have become *more* prevalent as a consequence of the increased supply of graduates. There is a tendency to assume that when large numbers of persons go on to college a degree is increasingly seen by both employers and employees as the norm for occupational advancement (Tinto, 1987, p.205). While this might well be the case, it has yet to be demonstrated that the tendency toward screening or credentialism has increased over time.

4.4.2 Graduate underutilisation

One of the issues to emerge in the 1970s as graduate labour market prospects became less assured was that of underutilisation. The US Bureau of Labour Statistics defines underutilisation as college graduates who work in jobs that do not require their level of education. Surveys and other research show that most jobs in the following occupational groups neither require a degree for entry nor offer job duties attractive to graduates: retail sales; administrative support including clerical; service; and craft, operative and labourer (Hecker, 1992, p.14)

Under this definition of underutilisation, the number of underutilised graduates tripled between 1969 and 1979 — from an estimated one million to 3.2 million). The proportion doubled from about one graduate out of 10 in the labour force to almost two out of 10 (Table 4.4). As noted, in section 4.3.4 above, the proportion of graduates in jobs not requiring a degree is projected to increase to 30 per cent by the year 2005.

Table 4.4 College graduates in the labour force: 1969 to 1989 (in thousands)

Job type	1969	1979	1990	% change 1969 to 79	% change 1979 to 90
Total	9,676	17,925	28,983	85.3	61.7
In jobs requiring a degree	8,644	14,762	23,230	70.8	57.4
Not in jobs requiring a degree or unemployed	1,032	3,163	5,753	206.5	81.9
Sales	149	437	1,146	193.3	162.2
Administrative support	373	976	1,533	161.7	57.1
Craft etc.	269	785	1,306	191.8	66.4
Service	105	449	889	327.6	98.0
Farm	46	112	190	143.5	69.6
Unemployed	90	404	688	348.9	70.3
% underutilised	10.7	17.6	19.8	—	—

Source: Hecker 1992, Table 1

The concept of underutilisation used by the Bureau of Labor Statistics is not without its critics (Alsalam, 1993; Fechter, 1993). In particular, it is unclear whether a graduate in a job not traditionally requiring a college education (an underutilised graduate) does not contribute more to that job as a result of his/her education than a non-graduate co-worker. That is, as employers seek to increase the added value of their operations, they may find that graduate employees provide a higher level of added value than non-graduates.

Some support for this argument is provided by data on the earnings of individuals in similar jobs. The average earnings of college graduates are consistently higher than those of high school graduates in the same occupations. This may be an indication that employers perceive college graduates as more productive. It may therefore be the case that the nature of jobs, including jobs 'not requiring a college degree', is changing as more workers with a college education enter the labour force (Alsalam, 1993). As graduates enter occupations not traditionally requiring a degree they may change the skill levels expected of employees in those occupations and thereby effectively raise the qualifications required by employees working in such jobs.

One of the ways in which work is being reorganized relates to the increasing use of new technology, altering job functions such that they now require more skill. If college graduates are better able to demonstrate these skills they will be more attractive to employers than their less highly educated counterparts (Fechter, 1993).

4.5 Summary

The increased supply of graduates in the US has been associated with the following changes:

- initially rising but subsequently static real starting salaries
- a continued and, in recent years, increasing wage advantage relative to high school graduates
- an increase in the proportion of graduates in jobs not previously done by those with a bachelors degree and hence increased 'underutilisation' as defined by the US Bureau of Labor Statistics
- an increase in the proportion of graduates in all industries and occupations.

Overall, graduates continue to have a distinct labour market advantage over non-graduates although in absolute terms their position is less assured. For many jobs, a bachelors degree is increasingly necessary, but it is no longer sufficient to guarantee access to a career-oriented position.

As is the case in the UK, there is little longitudinal information on the career patterns of US graduates. Available data provide an insight into their overall labour market position but tell us little about graduate career paths and their experience of the labour market over time.

The current situation of new graduates is discussed more fully in the next chapter.

5. Recruitment and Prospects in the Early 1990s

5.1 Introduction

This chapter looks in more depth at the current situation for US graduates. The previous chapter provided an overview of the main demand trends in the postwar period and showed that although graduates enjoy a labour market advantage relative to non-graduates, new graduates are facing increasingly difficult employment conditions.

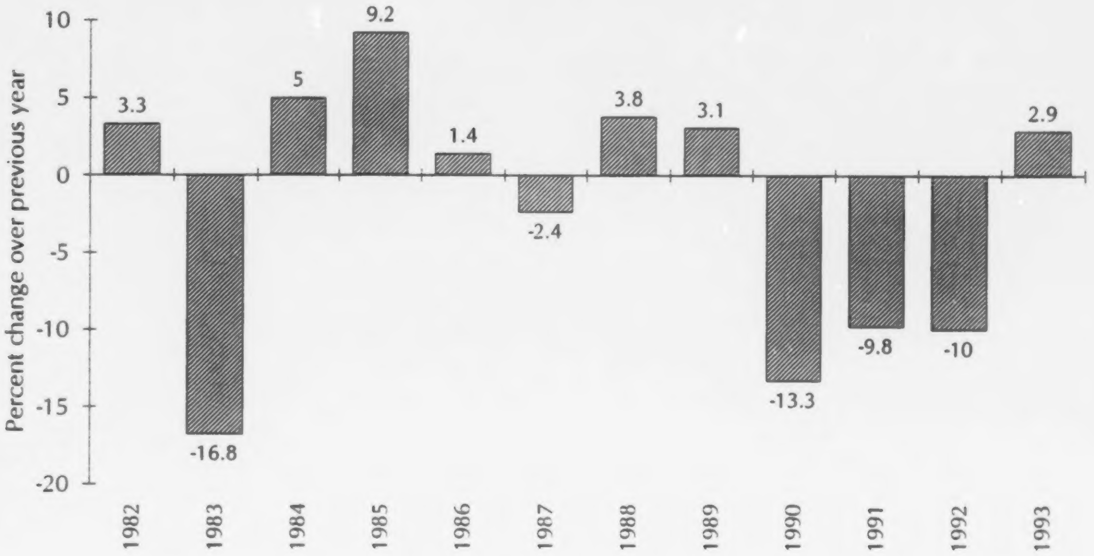
This is reflected in recent recruitment trends, lack of growth in starting salaries, and the first destinations of graduates. This chapter presents information on these changes and discusses differences among newly qualifying graduates in different disciplines. It then goes on to summarise available information on mature graduates and sub-bachelors degree graduates. The final section examines employers practices and changes in the graduate labour market.

5.2 Recruitment activity and starting salaries

Surveys of graduate recruitment activity show that recruitment declined substantially in the late 1980s and early 1990s but is beginning to pick up. A survey by the Collegiate Employment Research Institute (CERI) shows that beginning in 1989/90, the number of new graduates recruited declined after a steady period of growth in the mid-1980s (Figure 5.1). A number of recent studies suggest that this decline has been reversed. For example, employers in the most recent CERI study reported a slight increase in the number of new graduates hired (2.9 per cent) between 1992 and 1993 (Scheetz, 1993, p.2).

A slight increase in recruitment is predicted for 1993/94. Fifty-seven per cent of employers in a College Placement Council (CPC) survey planned to hire more graduates in 1993/94 than they did last year. Overall, an increase of 5.9 per cent from 1992/93 was projected. The private sector is leading this expansion in recruitment with 57 per cent of services employers and 61 per cent of manufacturing employers anticipating an increase in the number of recruits. The numbers hired are expected to rise by six per cent in services and ten per cent in industry. This contrasts with a decline of ten per cent among government and non-profit employers, only 37 per cent of whom expect recruitment to increase over the year to 1993/94 (*Spotlight*, p.3; see also Scheetz, 1992, p.19).

Figure 5.1. Vacancy levels for new college graduates: 1982 to 1993



Source: Scheetz, 1993 and 1992

Within this general situation of surplus supply, shortages do exist. In the CERI study, 17 per cent of respondents expected a shortage of graduates from particular disciplines including: engineering, computer science and software engineers, nurses, pharmacists and therapists (Scheetz, 1992, p.23).

The indications are that the job market for new graduates will remain very competitive with employers closely monitoring their needs and continuing to seek only the 'best' candidates (*Spotlight*, 1993, p.8). As is the case in the UK, 1993 graduates faced competition from previous years' graduates and this is also likely to be the case in 1994.

The difficult job market for new graduates is reflected in recent and projected starting salaries. There has been very little change in average salaries for new graduates in the early 1990s. According to one study, over the year to September 1993 the average starting salary for a new graduate declined slightly (by 0.5 per cent). Projections for 1993/94 suggest that there will be a slight rise over the year (of around two per cent) (Table 5.1; *Spotlight*, 1993, p.6).

The highest increases were recorded by graduates in the humanities and social sciences[1] (four per cent), agriculture and natural resources and communications (three per cent). Salaries for graduates in the sciences and education graduates declined the most (minus three per cent).

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[1] Humanities and social science graduates experienced a significant decline in starting salaries in the previous year (1991 to 1992).

There are also differences in the level of salary by discipline. Available data show that engineering, health science (including nursing), and computer science disciplines command the highest salaries (over $30,000 a year) and education, home economics and communications graduates the lowest (less than $25,000) (Table 5.1).

Table 5.1 Average yearly salary offers (by subject group)

Subject	September 1993	September 1992	% change
Business	$26,301	$25,915	+1.5
Communications	$21,489	$20,933	+2.7
Education	$20,169	$20,764	−2.9
Home Economics	$21,091	$20,924	+0.8
Humanities and Social Sciences	$22,496	$21,717	+3.6
Engineering	$33,994	$34,044	−0.1
Agriculture & natural resources	$23,180	$22,437	+3.3
Computer sciences	$31,104	$30,399	+2.3
Health sciences	$32,673	$33,240	−1.7
Sciences	$26,193	$27,017	−3.0
Total	**$28,496**	**$28,642**	**−0.5**

Source CSU Statistical Quarterly, 54 — Nov. 1993, p.7

Masters and doctoral degree graduates receive higher starting salaries, with the highest salaries going to MBA graduates (an average of $39,143) and the lowest to graduates with Masters degrees (an average of $35,289) (Scheetz, 1992, p.35).

The overall situation in the early 1990s can be summed up as a difficult labour market for new graduates. Declining or static levels of recruitment have been associated with relatively unchanged starting salaries.

The main reason for the recent problems faced by new graduates is the downturn in jobs resulting from company restructuring and downsizing activities. Larger companies which have traditionally taken the bulk of graduate recruits have been particularly affected, with 750,000 jobs lost in Fortune 500 companies[2] in recent years (*Manpower Comments*, 1992b, p.6). This has reduced the number of entry level positions traditionally filled by graduates and decreased future demand for middle level managers. Similar processes are resulting in a difficult labour market for graduates in the UK.

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[2] These are the 500 largest US companies as measured by turnover.

There is evidence to suggest, however, that graduates *are* finding jobs, but taking longer to do so. In 1993, only 42 per cent of students had a job at graduation, whereas six months later this had risen to 84 per cent (*Spotlight*, 1993, p.1). One of the common themes emerging from our interviews with experts in the US was that it is now taking longer for graduates to find work, especially work in the career they are interested in following. They may have to enter employment at a lower level than they had anticipated and work their way up. Alternatively, they may need to gain some experience before getting the kind of work they want. This is especially the case in smaller companies which do not have the training budgets for inexperienced recruits (*Manpower Comments*, 1992b, p.6)

One of the reasons for the delay in finding work may be that graduates are increasingly looking for work in smaller and medium sized companies (*Manpower Comments*, 1992b, p.6). Their recruitment methods tend to be more directed at personal referrals, classified ads and unsolicited applications rather than college placement offices (Pritchard, 1993; Hostettler and Swift, 1987). This makes it less likely for graduates to secure employment with smaller companies before they graduate and increases the length of the job search process.

5.3 Early destinations of college graduates

There is no national census of the first destinations of college graduates comparable to the UK's First Destination Survey. Nevertheless, the National Center for Education Statistics (NCES) conducts periodic surveys of a sample of bachelors degree recipients one year after graduation, the last of which was carried out in 1991 on 1990 graduates. The following analysis is based on returns from over 14,000 graduates, a response rate of 83 per cent. Given that over one million degrees were awarded in 1990 this represents a relatively small proportion of total graduates and the data should be interpreted with caution. This is particularly the case when they are disaggregated by student characteristics.

One year after graduation 97 per cent of 1990 graduates were either enrolled in additional education or in the labour force (Figure 5.2). A total of 74 per cent were employed full-time, 11 per cent employed part-time, four per cent were unemployed and nine per cent were engaged in further studies. This overall pattern varied by student characteristic with asians and pacific islanders being less likely to be employed and more likely to be enrolled in further studies than any other group. Students with an undergraduate professional degree[3] were more likely to be employed (90 per cent) than those with an arts and science degree (76 per cent). More of the latter went on to additional study than the former which must reflect the greater labour market relevance of the skills acquired by those taking degrees in a professional field.

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[3] Business/management, education, engineering, health professions and public affairs/social services disciplines.

Table 5.2 Summary information on recent college graduates: 1991

Major fields of study[1]	Employed						Not employed				Ever enrolled in further education		
								Looking and available for work (unemployed)[3]					
	Mean annual salary of full-time employed $	Full-time	Part-time	Job related to field of study	Some career potential of job	Four-year degree not required for job	Total looking for work	*Per cent*[4]	*Rate*[5]	Not looking for work	Total enrolled	Employed	Not employed
All majors	23,600	74%	11%	76%	79%	44%	5%	4.0%	4.5%	11%	35%	24%	11%
Professional fields	25,300	82%	8%	85%	85%	39%	4%	3.5%	3.8%	6%	28%	22%	6%
Business/management	24,700	83%	6%	81%	83%	47%	6%	4.9%	5.2%	5%	21%	16%	5%
Education	19,100	77%	15%	87%	84%	24%	3%	2.0%	2.2%	5%	38%	33%	5%
Engineering	30,900	85%	3%	89%	90%	19%	4%	3.1%	3.4%	8%	32%	23%	9%
Health professions	31,500	81%	11%	95%	92%	49%	2%	0.9%	1.0%	6%	27%	22%	5%
Public affairs/social services	20,800	77%	11%	71%	71%	52%	5%	4.3%	4.6%	7%	35%	28%	7%
Arts and sciences fields	21,700	62%	14%	61%	71%	50%	6%	4.6%	5.7%	17%	46%	28%	18%
Biological sciences	21,100	51%	12%	73%	67%	42%	5%	2.7%	4.2%	32%	64%	30%	34%
Math, computer sciences, physical sciences	27,200	71%	8%	86%	85%	33%	5%	4.2%	5.1%	15%	40%	24%	16%
Social sciences	22,200	68%	12%	53%	72%	52%	6%	4.2%	4.9%	13%	42%	28%	14%
Humanities	19,100	59%	19%	57%	66%	56%	6%	5.1%	6.2%	15%	43%	28%	15%
Psychology	19,200	60%	14%	65%	69%	53%	8%	5.3%	6.7%	18%	50%	31%	20%
History	21,300	58%	15%	30%	60%	63%	9%	6.5%	8.2%	18%	50%	30%	21%
Other[2]	20,800	74%	11%	74%	78%	51%	5%	4.4%	4.9%	10%	29%	21%	9%

[1] See Appendix C for description of majors included under each major field category.

[2] Includes agriculture and natural resources, architecture and environmental design, area studies and ethnic studies, communications, consumer/personal/miscellaneous services, home economics, industrial arts, law, liberal/general studies, library sciences, military sciences, multi/interdisciplinary studies, personal and social development, and trade and industrial.

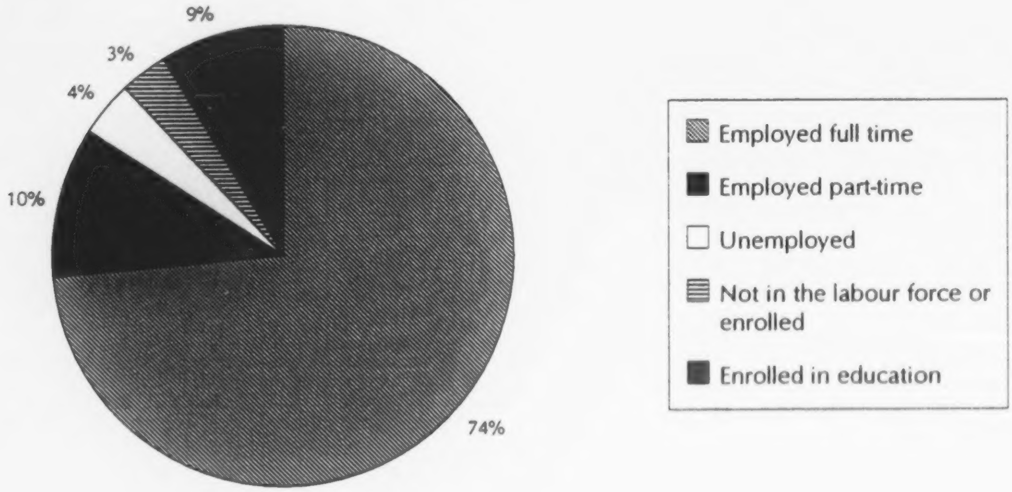
[3] This is a subset of the 'total looking'. Includes graduates not employed and both looking for work and available for work.

[4] Represents a per cent of total graduates who are unemployed.

[5] Represents per cent of graduates in the labour force who are unemployed. The labour force is the sum of those employed and unemployed.

Source: US Department of Education, National Center for Education Statistics, 1991 Recent College Graduates Survey

Figure 5.2. Labour force status of bachelors degree recipients one year after graduation: 1991



Source: National Center for Education Statistics, 1993, Figure 1a

In 1991 the graduate unemployment rate[4] averaged 4.5 per cent at a time when the overall rate for the US was 6.5 per cent (National Center for Education Statistics, 1993, p.7). Despite the difficult employment market for graduates at this time, the per cent of **total** graduates (including those not in the labour force) unemployed one year after graduation had not changed markedly from that of previous years — from 5.1 per cent in 1976 it fell to three per cent in 1985 and rose to four per cent in 1991. These figures suggest that despite the marked increase in the supply of new graduates, there has not been a trend toward increasing unemployment among them.

Unemployment varies by discipline, being higher among arts and science graduates (5.7 per cent) than those in professional fields of study (3.8 per cent). History (8.2 per cent), psychology (6.7 per cent) and humanities (6.2 per cent) graduates have particularly high rates of unemployment and health professions (one per cent), education (2.2 per cent), engineering (3.4 per cent) and business management (3.8 per cent) graduates the lowest rates (Table 5.2).

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[4] The number both looking and available for work as a percent of the total graduates in the labour force. The unemployment rate is different from the per cent unemployed reported elsewhere in that the per cent unemployed refers to those both looking and available for work as a per cent of total graduates.

Disciplines with the highest rates of unemployment also attract some of the lowest salaries, with history, psychology and humanities graduates receiving below average salaries one year after graduation. Those in professional fields with low rates of unemployment tend to have above average salaries, the main exception being education graduates who attract one of the lowest salaries of all disciplines ($21,100 versus an average of $23,600) (Table 5.2).

While unemployment may not have increased markedly as a result of the expanding supply of graduates, there is some evidence of a recent increase in the proportion going on to further study or training. The proportion of graduates stating that they had enrolled in additional education since graduation has increased from 27 per cent in 1976 to 35 per cent in 1991. The per cent doing so declined to 1985 (23 per cent) before rising in 1987 and 1991. It is not, however, clear whether this is a temporary result of recession or part of a longer term trend driven by graduates seeking to differentiate themselves from the rising number of bachelors degree recipients. The fact that the proportion engaging in additional study declined to less than a quarter in 1985, a year of high demand for graduates, suggests a short-term, cyclical explanations rather than a long term trend.

Enrolment in additional study does not necessarily mean a full time commitment to a degree programme beyond the bachelors. Less than one fifth of graduates enrolling in additional study had enrolled full-time and only 24 per cent had engaged in a *degree* program beyond bachelors level.[5]

The propensity to pursue further studies is particularly marked among arts and science graduates, 46 per cent of whom continued with some form of education, and low among professional graduates (28 per cent). The proportion engaging in additional education ranges from 21 per cent of business and management graduates to 64 per cent of biological science majors (Table 5.2). Since the unemployment rate of arts and science graduates is also higher, these graduates may be looking to increase their skills by taking further courses.

The Recent College Graduate Surveys began in 1976 at the height of the 'overeducated American' debate. One of the objectives of the study is to explore the extent to which graduates enter high career potential, professional and managerial jobs. Evidence from the 1991 survey shows that professional and speciality and business and management occupations account for 60 per cent of bachelors recipients employed full-time (44 per cent and 16 per cent respectively). A relatively large proportion are, however, in administration support (17 per cent), sales (11 per cent), and other (12 per cent) occupations. It remains the case that new graduates are considerably more likely to be found in professional jobs than the general workforce, in which only 15 per cent of workers are in these occupations (National Center for Education Statistics, 1993, p.11).

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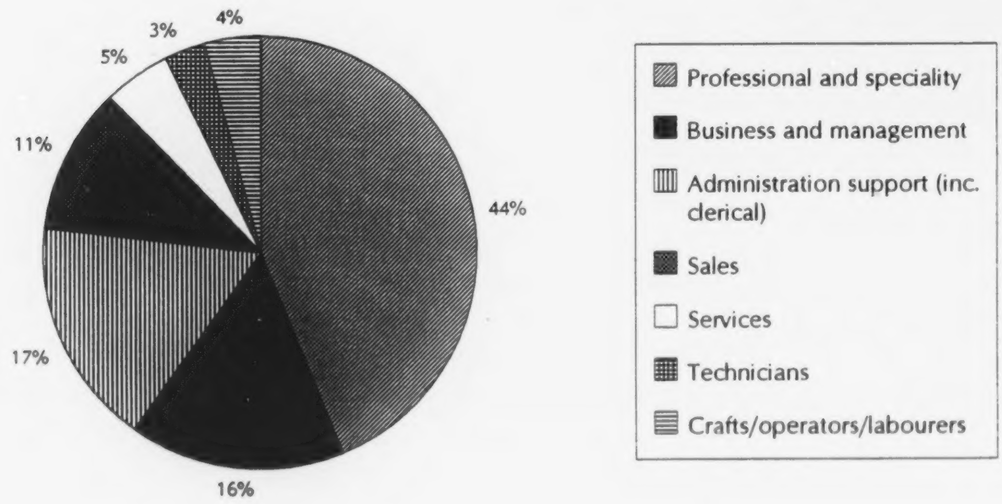
[5] This explains the discrepancy between trends identified in the Recent College Graduates Survey and trends in degrees conferred. In Chapter 3 we pointed out that the proportion of bachelors degrees awarded relative to higher degrees has not changed since the 1960s. While increasing proportions of students are entering further study it is evident that not all seek to attain a higher degree.

Figure 5.3. Occupational distribution of bachelors degree recipients employed full-time one year after graduation: 1991



Source: National Center for Education Statistics, 1993, Figure 6

Published data from the 1991 survey are not directly comparable with that of previous surveys but a comparison of the occupational group of employed graduates for the 1977 to 1986 surveys shows that there has been no marked change in the early occupational destinations of bachelors degree recipients. The two main categories, executive, administrative and managerial and professional speciality occupations accounted for the same proportion of new graduates in 1977 as in 1986 (60 per cent) (Amirault, 1990, Table 5).

A second major concern of the RCG survey is to measure the extent of underutilisation of new graduates. Graduates are asked a series of questions about the relationship of their jobs to their major field of study, underemployment, and the extent to which a four-year degree is required to do it. About three quarters of graduates stated in 1991 that their job was related to their major field, with this proportion ranging from over 85 per cent among those qualified in health professions, engineering and education to less than 60 per cent among humanities (57 per cent), social science (53 per cent) and history (30 per cent) graduates.

Over the six year period to 1991 the proportion stating that their job was related to their major field did not change. An increasing percentage of graduates did, however, suggest that a four-year degree was not required for their job (from 37 per cent in 1985 to 44 per cent in 1991). As is the case with other indicators, there was variation by discipline, with history (63 per cent) and humanities (57 per cent) majors being more likely to be in jobs not requiring a degree and engineering (19 per cent) and education (24 per cent) majors least likely to make this assessment (Table 5.2).

The RCG also tries to assess the level of underemployment among graduates. Underemployed are those graduates who are employed full-time in sales, service, administrative support, crafts, operators and labourer jobs and who indicated that a college degree was not required for the job. About a quarter (23 per cent) of graduates employed full-time fell into this category in 1991.

Again there was variation by discipline with a third or more of history, public affairs/social services and humanities graduates being categorised as underemployed and ten per cent or less of health professions, engineering and mathematics, computer science and physical science graduates.

To summarise, while new graduates face a difficult employment market the extent of difficulty varies by discipline. Graduates from the arts, in particular, are more likely than other graduates to:

- be unemployed
- state that a four-year degree is not required for their job
- be pursuing additional studies.

5.4 Mature new graduates

Chapter 2 highlighted the increasing numbers of older graduates in US higher education. This section draws together the available evidence on their labour market experiences once they graduate. This is very limited and somewhat out of date but there is no national study of the labour market for mature graduates. Existing studies of new graduates are based on relatively small sample sizes which preclude detailed disaggregation.

There are two related characteristics of older graduates which suggest that their labour market experiences may differ from those of their younger counterparts. First, their reasons for returning to higher education are more career driven. Second, as a result, they tend to undertake more vocationally oriented courses.

Research on the motivations of returning students shows that most adult decisions to re-enter education are related to significant changes in their lives — changes affecting their careers, family situations, health, religion or leisure opportunities. They return in order to affect a change in their circumstances (Spanard, 1990, p.312; Smart and Pascarella, 1987). Beyond this, more specific analyses of the reasons for re-entering produce inconsistent results. For example, according to one study, in comparison with traditional age students, adults are motivated more by cognitive interests ('learning for its own sake') than by social relationships ('to make new friends') or external expectations ('to carry out the recommendations of some authority'). This finding was contradicted by a second study which showed no difference between adults and traditional age students in the importance of social relationships (Smart and Pascarella, 1987).

There is however fairly consistent evidence to suggest that adults are particularly concerned to improve their career and job status or income prospects when returning to education. A study of 1,000 'stopouts',[6] showed that the intention to re-enter education was influenced by a number of factors including:

- The unfulfilled attainment of degree aspirations at the time they were first year college students.
- The type of employment they were working in, with employment in public and large organisations having a positive influence on intention to return. This may be due either to larger, public organisations being more likely to encourage and/or provide support for employees to continue their educational pursuits or that their employees recognize the need for further education in order to succeed.
- Early career experiences, with those dissatisfied with some aspect of their current job or career prospects being more likely to re-enter higher education (Smart and Pascarella, 1987).

This last point was supported by a study of adult students aged 29 or more at graduation attending the University of Wisconsin. The purpose of the study was to determine the impact of a bachelors degree on their lives and work three to five years after graduation. The initial goals of these graduates when they returned to college are presented in Table 5.3.

Table 5.3 Adult students' reasons for re-entering education

Goal at entry	% checked very important (n=254)	% checked most important (n=254)
Satisfaction of having a degree	58	18
Develop a new career	54	26
Simply to learn	53	16
Achieve independence and sense of identity	39	16
Advance in career	29	12
Make contact with others	16	0
Get away from routine of daily living	14	0
Other	17	12

Source: Mishler, 1993

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[6] Individuals who by 1980 had not completed a degree or vocational certificate embarked upon in 1971.

The results show clearly that to *develop a new career* and to *have the satisfaction of having a degree* were two leading goals of most graduates as they returned to college. This was confirmed in our interviews with experts in the US who pointed out that many adults return to education after being laid off from their previous jobs. They use the opportunity to retrain in a field more appropriate to the demands of the economy in the hope of improving their job prospects on completion. They are also more likely than younger students to be studying part-time and to attend a two-year college. For example, 36 per cent of those enrolled in two-year colleges are aged 30 and over compared to 23 per cent of those at four year institutions (*Digest of Education Statistics 1993*, Table 172).

Respondents to the Wisconsin study experienced significant changes in their employment patterns once they have graduated. These included:

- Changes in employment status, with a substantial growth in the percentage of people employed full-time (from 54 per cent to 78 per cent). Women in particular were most likely to change employment status, with most of the change being accounted for by the movement of women out of the homemaker category and into the full-time employed category.

- Changes in the type of job held, with a particularly marked flow from clerical/sales and factory line positions into professional positions. Movement into professional jobs was more dramatic for women than men. Slightly more than half of each group held professional jobs before returning to college, and three quarters of men compared to 90 per cent of women did so three to five years after completing their degree.
- Only 11 per cent of employed adult graduates reported that the degree caused no change in their employment situation.
- Changes in on-the-job benefits, with most of the employed graduates reporting that they had received a pay increase (62 per cent), greater responsibilities (63 per cent), changed to a different job (55 per cent), and/or received increased status or respect from their employer and/or co-workers (51 per cent). Many of these changes may have occurred without possession of a degree but it was the perception of most graduates that these changes were a direct result of having earned the degree.
- The greatest job change occurred among those graduates who originally entered college with the goal of developing a new career or achieving independence and a sense of identity.

The study also found that 85 per cent of adults would definitely have gone back for their degree given what they now knew and an additional 12 per cent probably would have done so (Mishler, 1983).

The University of Wisconsin study reported the effects of degree attainment of adults completing a traditional degree program. Other studies of external degree holders (those gaining their degree through a nontraditional programme of independent and off-campus study designed for adults) have shown that external degrees also yield tangible job benefits. A national study of 1,000 such graduates conducted in the mid-1970s found that younger adult graduates who entered college with the goal of job advancement reported greater job change. The degree paid off least for older men working in nonprofit service organisations and more for women, those aged 30 to 39, and those employed in private manufacturing (Mishler, 1983; Sosdian and Sharp, 1978).

These studies clearly demonstrate the advantages to adults of gaining a degree. There is currently no national longitudinal study of adults returning to education and it would be interesting to know whether the positive outcomes of attaining a degree from the University of Wisconsin would be replicated at different institutions on a national basis. The new *Baccalaureate and Beyond* longitudinal study of bachelors degree recipients being conducted by the NCES (see Appendix A) may be able to provide some indication of more broadly applicable results when it first reports in the mid 1990s.

The Recent College Graduates survey provides some information on graduates aged 26 and older. These data are based on a relatively small sample and disaggregating them in this way may produce some misleading results. In addition, our interviews with US experts suggested that age discrimination mainly affected graduates in their thirties and forties. The 26 year cut-off may therefore include many graduates in their late twenties with a relatively advantageous labour market situation which would disguise indications of discrimination against those in older age groups. The main differences between older and younger students were:

- One year after graduation older students were more likely to be in the labour force than younger graduates (91 per cent versus 88 per cent).
- A higher proportion of older graduates were employed full-time than was the case for younger students (75 per cent compared to 68 per cent of those aged 20 to 23). This lends support to the idea that older students are more concerned with the employment outcomes of education.
- Older students had a slightly higher unemployment rate (5.1 per cent versus four per cent for those aged 20 to 23).
- Younger students were more likely to be engaged in further study (16 per cent compared to five per cent) and among those enrolled a higher proportion of younger students were enrolled in a degree programme beyond bachelors (31 per cent compared to 22 per cent).
- A higher proportion of older students stated that a college degree was not required for their job (50 per cent compared to 39 per cent of those aged 20 to 23). This may indicate a relatively disadvantageous position in the labour market for older students but other indicators of job quality do not show marked differences between older and younger students. For example, 81 per cent of older students stated that their job had career potential compared to 77 per cent of those aged 20 to 23. This difference in assessment of the necessity of a degree may therefore reflect older graduates' greater experience of the labour market.

- Older graduates commanded higher salaries than their younger counterparts. The annual salary of full-time employed graduates was $26,332 for those aged 26 and older and $21,585 for those aged 20 to 23.

We asked about any particular problems older students may face in the labour market in our interviews. The dominant view was that older graduates faced no worse discrimination in the labour market than older people in general. Indeed, in the current climate of demand from employers for work experience among graduates, mature students could benefit from their greater labour market experience. The main problem careers advisors faced was persuading students to 'package' their experience effectively and to make it relevant to the kinds of jobs they were applying for.

The main problems faced by mature students were lack of mobility and, in some industries, the fact that they did not fit in with a traditional age-related career structure. Graduates considerably older than traditional students (estimates of this ranged from 30 to 40 and above) also faced age discrimination.

To summarise:

- Older students do appear to benefit from participation in higher education when their situation prior to doing a degree is compared with that several years after completion.
- Their labour market experiences relative to those of younger graduates are more difficult to assess, although the current stress employers place on work experience may be a factor in favour of older students, allowing them to command higher salaries.
- Age discrimination for those in their 30s and 40s remains a problem.

5.5 Sub-degree graduates

Chapter 4 showed that the labour market position of people with associate degrees and other sub-degree qualifications is favourable relative to those with no post-secondary education. This clearly shows the advantages of additional qualifications. There is, however, no national study of the outcomes of sub-degree graduates comparable to the Recent College Graduates Survey. The NCES are introducing such a study but the first results will not be available until mid 1994.

Some basic data on the early destinations of new sub-bachelors degree graduates from Michigan colleges and universities are, however, available. The data are based on information provided by 33 Michigan colleges' follow-up surveys of students about six months after graduation. In 1991 the response rate from graduates was lower than in previous years and, since it is known that unemployment and uncertainty about future plans tend to depress response rates, the picture presented below is likely to be more optimistic than the actual experience of all graduates.

The table below shows that Michigan new sub-degree graduates were less likely to be unemployed than either bachelors or masters graduates. The unemployment rate for bachelors recipients was relatively high, at 12 per cent, compared to five per cent for both certificate and associate degree graduates. This may be because those with certificates had more vocational qualifications which gave them an advantage over more highly qualified but less vocationally oriented bachelors graduates (Table 5.4).

In keeping with one of the aims of the degree, almost a third of associate degree graduates were continuing with their education. This proportion fell to one in ten for those gaining a certificate, with a higher proportion of these graduates working full time (74 per cent compared to 55 per cent of associate degree recipients).

Table 5.4 Early destinations of Michigan college and university students by level of award: 1991

Degree	Number reporting	% working full-time	% continuing education	% unemployed	% other	Average salary of employed ($)
Certificate	673	74	10	5	9	17,740
Associate	4,043	55	32	5	5	18,729
Bachelors	14,215	67	16	12	6	24,786
Masters	2,807	80	10	7	5	35,235
Doctoral/ Professional	629	91	6	3	1	37,764

Source: Scheetz and Gardner, 1993

Consistent with national level data on salary by qualification, graduates with lower level qualifications commanded lower salaries than other graduates. There was relatively little difference in the salaries of those with certificates and associate degrees but these graduates were sharply differentiated from those with bachelors and higher degrees.

Among certificate recipients there were some marked differences by type of qualification (Table 5.5). Those graduating with protective service and public affairs certificates had the highest rates of full-time employment (78 per cent) and those with business, office and marketing, and engineering and related technology the lowest (64 per cent). The former had an average unemployment rate (five per cent) and a lower than average proportion going on to further education (four per cent). Business and engineering certificate holders, on the other hand, were characterised by both higher than average unemployment and continuing education rates — engineering certificate holders were especially likely to continue with their education, with 20 per cent doing so.

Unemployment was highest among home economics certificate holders and lowest among health service certificate recipients (21 per cent versus one per cent).

Table 5.5. Early destinations of certificate recipients from Michigan colleges 1990 to 1991 (selected subjects)

Subject	Number	% employed full-time	% unemployed	% continuing education	% other	Average salary ($)
Business/office/marketing	102	64	9	11	13	15,948
Engineering/related technology	25	64	8	20	8	17,769
Health science	181	65	1	14	17	17,146
Trade and industrial technology	57	78	3	8	8	20,258
Protective service	222	88	5	4	2	18,550

Source: Scheetz & Gardner, 1993

Similar data for associate degree recipients shows an equally varied pattern, although in each subject a greater proportion of graduates go on to further education (Table 5.6). The proportion doing so varies from over three quarters of education graduates to just eight per cent of health service graduates. This reflects the different qualification requirements of jobs in these sectors with education positions generally requiring a higher level of attainment than some of those in the health service.

Table 5.6 Early destinations of associate degree recipients from Michigan colleges: 1991 (selected subjects)

Subject	Number	% employed full-time	% unemployed	% continuing education	% other	Average salary ($)
Business/office/marketing	1,289	63	7	22	6	17,129
Communications	80	20	1	73	5	13,188
Computer science	94	47	13	30	4	18,356
Education	103	17	1	76	3	10,838
Engineering/related technology	743	50	7	39	2	21,393
Health science	595	81	1	8	7	23,220
Home economics	134	38	4	54	2	12,608
Trade and industrial technology	116	93	6	26	4	18,249
Protective service	135	43	5	34	17	16,664

Source: Scheetz and Gardner, 1993

Sub-bachelors degree qualifications tend to be more vocationally oriented than higher level degrees. The career success of those gaining such qualifications is as controversial a topic as that regarding community college transfer rates. It is difficult to judge the advantages of an associate degree since some recipients will have gone on to gain a bachelors degree and others will have ended their education after the two-year programme. Analyses of students graduating from career programmes show widespread variation in terms of employment success by college and subject. For example, 75 per cent of career programme graduates in Illinois were employed whereas among those from the Wisconsin system this increased to 93 per cent. A Florida study found that graduates from its health programmes had higher employment rates (85 per cent) than those from office work and real estate programmes (50 per cent) (Cohen and Brawer, 1989, Chapter 8).

These studies have not used a consistent methodology and it is difficult to assess the validity of the results. Overall, it seems that the estimated return per credit at a two-year college is similar to that for a four-year college. In particular, graduates with sub-bachelors vocational qualifications in rapidly changing subjects may do as well as they would with a bachelors degree. In computing, for example, people with a degree from community colleges are likely to be earning more after two years in the workforce than those who spend four years getting a bachelors degree will earn in their first job (Schrof, 1993, p.127). It is not clear whether those with sub-degree qualifications will maintain their advantage, although in a dynamic field on-the-job training may allow two-year graduates to keep pace with their four-year colleagues.

To summarise, the current employment situation of graduates from two-year programs is difficult to assess. They do, however, appear to have good employment prospects, with the Michigan data showing low rates of unemployment and above average earnings. This is likely to vary widely by institution and quality of program. The outcome by subject clearly varies, with those graduating in health science and protective service subjects having lower rates of unemployment.

5.6 Employers and the graduate labour market

There is considerable interest in the kinds of skills employers are looking for in new graduates. When asked to rank the skills they desired in candidates, 45 per cent of recruiters cited proficiency in the field of study as being a key priority (Table 5.7). Following from this in importance were a series of core generic skills including oral communication, interpersonal skills, teamwork skills, analytical skills, flexibility, and written communication skills. Recent studies in the UK have found a similar ordering of priorities (see, for example, *Graduate Salaries and Vacancies 1993: Spring Update*).

Table 5.7 also provides a total for the number of times each skill was mentioned. This summary column shows that there were several distinct groupings of skills, with proficiency in the field of study, oral communication skills, interpersonal skills and teamwork skills each being mentioned by over 160 respondents. Analytical skills and written communication skills (with over 130 mentions) were ranked next followed by leadership skills and flexibility.

Table 5.7 Skills desired by employers

Skills	Rank					
	1	2	3	4	5	Total
Proficiency in field of study	111	16	13	11	11	162
Oral communication skills	74	33	40	29	23	199
Interpersonal skills	74	40	31	28	15	188
Teamwork skills	61	29	27	32	21	170
Analytical skills	46	35	21	16	16	134
Flexibility	45	10	9	20	23	107
Written communication skills	41	16	27	23	24	131
Leadership skills	38	20	22	12	17	109
Computer knowledge	34	10	10	8	19	72
Co-op experience	28	10	10	9	9	66
Internship experience	26	6	16	11	5	64
						n=245

Source: Spotlight, 1993, p.7 and authors' calculations

A study of smaller firms found somewhat different priorities with academic major and achievement being ranked below a series of personal and transferable skills. On a scale of one to three, with three being very important, the most highly ranked skills in job candidates were the ability to assume responsibility (2.8), hard work and initiative (2.7), motivation and self-discipline (2.7). Next in the ranking came the kinds of skills valued by employers in the first study: team working, interpersonal skills, flexibility and oral communication (2.5) (Pritchard, 1993, p.74).

It may be the case that in small firms graduates are required to contribute to the organisation early on in their career and therefore attributes such as assuming responsibility, taking the initiative and self-discipline are correspondingly important.

Data on the extent to which employers have responded to the long term increase in the supply of graduates relative to demand did not emerge during the course of this study. There are, however, some indications of the kinds of changes taking place in response to the more the recent downturn (Scheetz, 1992; Gardner *et al.*, 1988; *Spotlight*, 1993).

Employers have reported a number of important changes in their recruitment activity including:

- reduced campus visits and increased institutional targeting, with greater focusing of recruitment on selected institutions showing a history of successful recruitment to the organisation
- more use of college and university placement centres

- more specific selection criteria with greater emphasis placed on the grade point average[7] of new graduates and the use of assessment centers for second interviews
- more interest in students who have undertaken internships and cooperative education programmes (these programmes are discussed below).

On this last point, an increasing number of employers are placing more emphasis on interns and co-operative education students rotating into full-time positions. Top candidates are placed early into formalised internship and co-operative education programmes with the intention that these individuals would be kept on for full-time employment opportunities (Scheetz, 1992, p.28).

An internship is a short period of on-the-job work experience which students may undertake on a full-time basis in the summer or after completing their studies or part-time combined with college. It is designed to provide work experience and training. Internships are not linked to particular academic programs, although they do give students a chance to work in a job related to their academic interests, and neither do students usually receive either academic credit or payment for them.

Co-operative education is designed with a similar view in mind but is far more integrated into the curriculum, with more than two-thirds of programs awarding academic credit for the time spent working. It bears some similarity to sandwich courses in the UK, although periods of work experience tend to be more interspersed with periods of study. In addition, students *individually* indicate an interest in undertaking a co-operative programme of study and coordinators help place them with relevant employers.

In the late 1980s more than 200,000 college students from over 1,000 institutions engaged in co-operative education. They worked in a variety of occupations including accountancy, newspaper reporting, engineering and physical therapy (Stanton, 1988, p.22). Colleges adapt co-operative programs to their particular needs but the basic principle is to integrate college studies with work assignments to provide an education with career relevance. Co-operative education programs are available on a two-year, four-year or five-year basis in almost every academic field. Community and junior colleges account for over 40 per cent of co-op programmes. These colleges often employ a parallel classroom/work schedule with students spending part of the day in class and the remainder with their co-op employer. In the four-year institutions students generally alternate terms or semesters in the classroom with work assignments (Stanton, 1988).

Co-operative education students are paid for the work they do. In 1992, co-operative education students in the Midwest received between about two-thirds and four-fifths of the salary paid to a new graduate depending on their experience (Crusoe, 1993, p.1). A majority of employers also pay new recruits who have participated in their co-op program higher starting salaries than those graduates without co-op experience (*Spotlight*, 1993, p.7).

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[7] See p.7 for a definition of the grade point average (GPA).

Evidence from published material and our interviews suggests that there are significant advantages for students who engage in co-operative education or internships. One survey found that 17 per cent of bachelors degree recruits in 1993 were from co-operative, internship or summer programmes. Over a third of students (37 per cent) in these programmes[8] were offered permanent jobs and 50 per cent of employers stated that they had increased, or planned to do so, their involvement in these programmes. Almost a half of employers indicated that they used the programmes primarily for recruiting targeted populations (Lindquist, 1992, p.8). According to one co-operative program manager the immediate benefit to employers is 'for finding qualified people for entry level positions' (Stanton, 1988, p.29).

In the current climate companies appear to be filling permanent positions with people who have already worked for them as students. In one large company about a third of all offers to new graduates go to people who have worked for them as interns and this proportion is planned to rise to 40 or 50 per cent (Farnham, 1993).The advantages to employers of hiring interns and co-op students include:

- ease of socialisation into the workplace
- higher acceptance rates and lower turnover
- their ability to start contributing to the organisation early on and the shorter training period required
- the fact that they are a 'known' quantity which reduces the risk of recruiting an unsuitable employee (Gardner and Motschenbacher, 1993; Stanton, 1988; Farnham, 1993; Lindquist, 1992).

5.7 Summary

The current recruitment market for new graduates is difficult and starting salaries have not kept pace with inflation in recent years. The situation of students graduating in the arts is particularly problematic and they experience higher rates of unemployment that those with professional degrees. The main changes to emerge as a result of this are:

- an increase in the time it takes new graduates to find the kind of work they are looking for, especially as many new employment prospects are in smaller firms which make limited use of college placement offices

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[8] A different study also found that employers offering a co-op programme for college students (46 per cent of those in the survey) recruited a substantial number of new employees from the program. In this case, 27 per cent of recruitment came from the co-operative education programme (*Spotlight*, 1993, p.7).

- an increase in the importance of work experience, with graduates who have undertaken an internship or co-operative programme being at an advantage over those with no relevant work experience
- increasing selectivity by employers who are looking particularly favourably upon graduates from targeted institutions and those with good grades in their courses.

There is more limited data on older graduates and those with sub-bachelors degree qualifications. Among mature students, research to date shows that:

- their career prospects and employment situation improve after completion of a bachelors degree
- they may have an advantage over younger students among employers looking for work experience
- age discrimination is a factor for those much beyond 30 or 40.

For sub-bachelors degree graduates, available evidence suggests:

- there are advantages to gaining such qualifications, especially in rapidly changing fields such as computing and health care
- relative to bachelors degree graduates, those with sub-degrees earn less on starting their first job although the cost of attending two-year colleges is lower and a shorter program means that graduates can enter the labour market sooner
- the advantages of sub-bachelors degree qualifications vary by institution attended and course of study.

6. Curricular Change and University-Business Links

6.1 Introduction

This chapter examines curricular developments and the relationship between higher education and business in the United States. Underlying both these topics is the role of higher education in society. This broader debate has been sparked by two issues of national concern: the question of how best to ensure that the US remains a competitive economy in the global marketplace and growing unease about the quality of higher education in an era of rising costs and budgetary constraints.

In the 1980s and early 1990s a number of publications highlighted the implications of structural economic changes for the nature of the US workforce (*eg* National Center for Education and the Economy, 1990; Johnson and Packer, 1987). A combination of expanded international competition and technological change have ensured that if the United States wishes to compete as a high skill, high value-added economy it must develop a skilled and productive workforce.

There is a widespread perception in the United States that current levels of skills and productivity are not sufficient to maintain the country's competitive position into the twenty first century. This has led to increased interest in the question of educational standards and assessment. For example, in the early 1990s the Secretary's Commission on Achieving Necessary Skills (SCANS) proposed the following set of foundation skills as essential for individuals in a high-performance workplace:

- Basic skills — reading, writing, arithmetic and mathematics, speaking and listening.
- Thinking skills — the ability to learn, to reason, to think creatively, to make decisions, and to solve problems.
- Personal qualities — individual responsibility, self-esteem and self-management, sociability and integrity.

In addition, SCANS recommended that effective individuals need to demonstrate competency in use of the following:

- Resources — to know how to allocate time, money, materials, space and staff.
- Interpersonal skills — to work on teams, teaching others, serve customers, lead, negotiate, and work well with people from culturally diverse backgrounds.

- Information — to acquire and evaluate data, organize and maintain files, interpret and communicate, and use computers to process information.
- Systems — to understand social, organisational and technological systems; monitor and correct performance; and design or improve systems.
- Technology — to select equipment and tools, apply technology to specific tasks, and maintain and troubleshoot equipment (Wingspread Group on Higher Education, 1993, Appendix E).

To date much of the policy effort resulting from the concern over skills and standards has been directed at the US primary and secondary school system in the form of President Bush's America 2000, adopted by President Clinton as Goals 2000. This is a national strategy to enable achievement of six Education Goals designed develop the skills and competencies of the future American workforce.

The debate over workforce quality and what students learn in high school has contributed to a second debate on the quality of higher education. The context for this has been the rising cost of college and the increasingly uncertain outcomes for college students in terms of what they actually learn from their courses. The concern with quality is not directly determined by the failures of US college graduates as workers. There is a more general sense that many graduates are not following a coherent course of study which allows them to develop the range of skills and competencies modern society demands (Wingspread Group on Higher Education, 1993; Hodges, 1994a; Solmon and La Porte, 1986).

For example, recent evidence from a national survey of adults shows that only about a half of four-year college graduates were able to demonstrate intermediate levels of competence in each of three areas: working with documents; reading and interpreting prose; and quantitative skills (Wingspread Group on Higher Education, 1993, p.5-6).

These two debates have led to increased interest in curricular change and the development of competency based programs. In four-year colleges, the introduction of such programs is still confined to a few much quoted examples but their future impact may be much greater. The following section looks at some of the curricular developments in two-year and four-year colleges. Section 6.3 then goes on to assess the nature of higher education-business links.

6.2 Curricular change and development

This section is concerned with evidence of curricular change and development. An associated topic is student assessment and there are a number of four-year colleges which have introduced new types student assessment in the past twenty years. Nevertheless, while there is tremendous interest in the subject, it is still the case that the overwhelming majority of colleges have yet to develop comprehensive individual assessment programs other than the usual letter grades A to F. One study found that only five per cent of institutions surveyed had done so (Smith, 1993, p.251).

One of the most often cited examples of a college which has reorganised its curriculum in order to specifically assess defined student abilities is Alverno College in Milwaukee, a small, private women's college offering associate and bachelors degrees. Alverno redesigned its programme around eight abilities:

- communication
- analysis
- problem solving
- valuing in decision making
- social interaction
- responsibility toward the global environment
- effective citizenship and involvement in the contemporary world
- aesthetic response.

All students are assessed on their progress in developing these abilities from level one to six and each course is designed to extend the student's competence in one or more of the abilities. Assessment takes the form of an evaluation of what the student knows, her command of the subject matter and mastery of the eight abilities. Students do not receive grades as a result of their assessments (Smith, 1993; Alverno College, nd).

A second example of perceived good practice in general education is Brooklyn College of the City University of New York. At Brooklyn College each student spends one quarter of their course work following a core curriculum. This core defines the general education knowledge each student is expected to acquire although the programme is also concerned with skill development, particularly methodological and expressive capabilities (Smith, 1993, p.252-53).

It is notable that these and other examples of good educational practice have developed their curricula mainly in accordance with pedagogical aims — they have not been driven solely by the demands of the labour market. Alverno College comes closest to acknowledging the importance of students' labour market experiences when it states in its catalogue that the college's purpose was reached by faculty asking:

> 'What will best enable [our students] to succeed in their careers? What insights will most enrich their lifetimes? What abilities will make a lasting difference in their homes, their families and communities? What will equip them to continue as independent learners who can adapt to and grow with the fast-changing world?' (Smith, 1993, p.252).

Alverno's aim was, therefore, to contribute to the labour market success of its students but the programme was designed with a broader set of goals in mind.

This is reaffirmed by the College's research to evaluate the impact of the institution on students. They found that students developed a range of skills that could be related to the labour market (they learn complex abilities; become self-sustaining learners; develop broad generic abilities; develop their ways of thinking; and experience competence) but were not concerned to evaluate employer perceptions of their students' abilities (Mentkowski and Doherty, 1984). Former students did stress the importance of the intellectual and interpersonal abilities they developed in college in their careers but it is clear that the college's main concerns do not lie solely with developing effective workers *per se*.

Responsiveness to the labour market is far more evident in two-year colleges. There have been major curricular and programme developments within some two-year colleges and change is perhaps a more widely accepted necessity within this sector of higher education. Community colleges tend to be more in touch with their local economy and sensitive to the demand of local residents. This is particularly the case now that an increasing proportion of community college students are older workers, many of whom are returning to education in order to retrain or develop more appropriate workplace skills.

Community colleges in some states are involved with the TechPrep strategy, a programme which has emerged from the Carl D Perkins Vocational and Applied Technology Education Act of 1990. The TechPrep programme usually encompasses the last two years of high school and the first two years of post-secondary education. It comprises a common core of proficiencies in mathematics, science, communications and technology and is designed to lead to a two-year associates degree or a certificate in a specific career field. The programmes are intended to combine academic and vocational courses which have traditionally been kept in separate tracks. By equipping students for lifelong learning they also provide preparation for more advanced education such as a four-year degree (Stern, 1992).

In TechPrep programmes, high school students take classes especially designed to prepare them for further study of a technical subject at a community college. The programmes most often combine high school courses that give the students the academic skills they will need with community college courses that provide the technical and occupational content. There is usually an articulation agreement between the school and college which formalises the link between the two components of the programme (Baxter, 1991).

TechPrep and other articulated programmes like it have expanded recently both in terms of the number of programmes and the number of students served. In California, articulated programmes have been developed in a range of subjects, including automotive specialities, office administration, electronics, accounting, general business education, computer/information systems, welding, early childhood education/childcare and machine shop/tools. In the state, one college alone had a thousand high school students enrolled in its articulated programmes (Baxter, 1991).

In the 1970s and 1980s, some community colleges adopted mastery learning procedures. In a mastery learning plan, competences are specified in the form of learning objectives and a variety of instructional techniques — practice tests, corrective feedback, additional learning time — are provided to ensure that most students attain mastery of the concepts or skills at the prescribed standard. The concept has not, however, become widespread. A variety of reasons for this have been advanced including:

- the cost of developing and operating programs
- the increased teacher and tutor time input required
- allowing students time to complete course objectives interferes with the college calendar
- the outcomes for most courses cannot be specified in advance
- accrediting agencies and other overseers demand differential grades
- employers and the public expect the college to sort students, not to pass them all through at prescribed levels of competence (Cohen and Brawer, 1989, Chapter 6).

This last point seems to counteract the message from employers and public institutions that an assessment of competence is what is lacking in higher education. These kinds of programmes may have been developed before their time and it would be useful to monitor the extent to which there is renewed interest in such mastery learning programmes in the current climate.

Competence based programs, which seek to specify the competences to be exhibited by students but do not include the range of instructional techniques used in mastering learning, have been more successful. This is particularly the case in occupational studies, especially nursing education and business education, where the performance objectives reflect the tasks that must actually be done in a particular job. Some institutions now use competence based education in all classes but it has not been widely adopted in general education or liberal arts programmes (Cohen and Brawer, 1989, Chapter 6).

There is some evidence to suggest that community colleges are moving toward guaranteeing the competences of their students. For example, a Kentucky program guarantees to employers that graduates of technical and allied-health programs are competent in certain skills (*Manpower Comments*, 1992a, p.29). Likewise, in Atlanta Area Technical School a warranty scheme for certain vocational courses has been introduced. Under the scheme, course programmes are designed by craft advisory committees and then given a warranty. This guarantees that the student who has completed the course successfully will have acquired specific skills. If during a period of two years after the course either the student or her employer considers that these skills have not been acquired, the technical school must allow the student to repeat the course free of charge or pay her to attend another institution within the state (DES, 1990, p.17).

Finally, the recent development of job-related, industry-specific national skill standards in the US is likely to affect vocational education programmes. The national system of standards provides guidance to states of performance standards for vocational-technical education, and education and training curricula are expected to change to take account of the new standards (Stern, 1992, p.26-27).

The private sector is involved in the development of national standards in the US and extensive business participation is a keystone of Goal 2000. The nature of higher education-business links is, however, a somewhat different topic and is considered in the next section.

6.3 Higher education-business links

This section is concerned with university-business links as they affect undergraduate student education. There are, in addition, many examples of co-operation over research and technology transfer[1] which frequently include the training of graduate-level scientists and researchers (for example, Lampe and Johnson, 1990; Moebus, 1991; Powers *et al.*, 1988). Furthermore, many US academics act as consultants to industry.

The role of the university vis-à-vis business is a subject of debate in the US. On the one side is the argument that the primary role of the university is to provide students with a balanced, well-rounded, liberal education. On the other side, is a claim that universities must meet the training needs of industry. Given the relative autonomy of universities in the US, it is impossible to generalise about how well, and the extent to which, they co-operate with industry in educating the workforce. At four-year colleges, however, the US does not typically train undergraduates for specific occupations but for a broader set of occupations within a profession or major (Stern, 1992).

Within four-year institutions, the most common form of university-business interaction concerning student education takes place in co-operative education programmes (see Section 5.6). In our discussions with experts in the US a common reaction to the question about business influence on college curricula was that 'the faculty would resist'. In academic program reviews there is little evidence of attention being paid to interactions with the outside community, particularly the business and industrial community. The only exception to this appears to be in financial support for research (Benoist, 1987).

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[1] There are industrial liaison programmes at more than 40 universities with a membership of 2,848 US organisations and 496 foreign companies (Lampe and Johnson, 1990).

There are, however, a number of instances where universities have established links with business in order to develop educational programmes. Many of these are concerned with postgraduate and continuing education, not with undergraduates. An exception is the Business Leadership Program at the University of Puget Sound. The programme was created in 1984 and designed with input from local corporations.

Students are actively involved with members of the business community in three components of the programme: mentorship, internship and the seminar series. Each group of students has a mentor. Mentors are local business executives who give advice and feedback on the students' activities and are involved in formal and informal instruction. Each student also participates in an internship[2] designed to satisfy the needs of the sponsoring organisation and to challenge the capabilities of the students. In addition, seminars are held once every two weeks either at the university or at local businesses (Wiek, 1992).

More common is business involvement in postgraduate and continuing education and retraining. For example, MIT (Massachussets Institute of Technology) formed the Leaders for Manufacturing Program in 1988. This is an alliance of the university's Schools of Engineering, Sloan School of Management and 11 US manufacturing firms. Its purpose is to educate a new generation of leaders for the manufacturing sector who will have both the management and technical expertise to put emerging advances in manufacturing technology to work in industry. The two year programme integrates management and engineering and includes a six month internship at a partner company. Students conduct research on actual industrial problems at member companies. Education and curriculum development occurs at MIT but with strong involvement of senior individuals from the manufacturing partners (Lampe and Johnson, 1990; Moebus, 1991).

Continuing education and retraining are two areas where university-business interaction is more widespread. A large number of universities and colleges are involved in providing training and updating for professional and skilled workers (Powers *et al.*, 1988, p.17; Chapter 8). This is in part due to professional bodies requiring their members to undertake continuous professional development. Since the demand for training is expected to increase, this is one area where educational links between businesses and universities can be expected to expand.

Examples of university-business co-operation in continuing education and retraining include Columbia's Off-Campus Graduate Education Program and the Coors-Regis Partnership in Colorado (Borbely, 1993; Nugent, 1992). The Off-campus Graduate Education Program at Columbia University has made use of the Columbia Video Network (CVN) to provide over 5,000 hours of postgraduate credit instruction to professional engineers at their worksites. A growing number of students are earning degrees through the CVN. Students participate in regularly scheduled courses through one of two means: a live, two-way video link using telephone lines or Tutored Videotape Instruction (TVI), whereby tapes are express mailed to off-campus students at the end of each class. Off-campus students meet the same academic requirements, take the same exams, and earn the same degrees as their counterparts on campus. Columbia staff work closely with site administrators at each participating company to ensure that students receive the necessary logistical and administrative services for participation in the program. Member companies include AT&T, Bell Labs, General Motors, IBM and Intel (Borbely, 1993).

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[2] In this case a paid eight to ten week period of employment usually completed during the summer following the student's third year in college.

The Columbia program is an example of students following a normal course of instruction. More common is contract training whereby universities contract with a local organisation to provide training in a particular subject, usually occupationally related. Courses vary in duration from one day to three years and a variety of methods of instruction are used, including lectures, video presentations, role playing and computer-assisted teaching (Powers *et al.*, 1988, Chapter 8).

While there are several examples of four-year institutions offering courses in partnership with industry, two-year colleges tend to have far more developed links with their local business community. In general, they tend to be far more responsive to employment trends, employer needs than their four-year counterparts. Nearly all community colleges already provide customised training to employees of business, government and industry as well as offering technical programmes to provide students with the skills demanded by local employers. Many community colleges have signed co-operative agreements with local employers to upgrade their workers — often on the worksite rather than on campus (Wingspread Group on Higher Education, 1993, p.140; Koltai, 1993, p.102).

Contract training usually allows business to have some influence over the content of courses. In two-year colleges, however, it is also usual for each main area of vocational work to have an advisory committee. These include representatives from industry and commerce and meet at least once a semester. The committees advise on the range and relevance of the programmes on offer and assist the college in identifying the needs of employers. They play an important role in helping the college ensure that its programmes are relevant to the needs of the local community (DES, 1990, p.17; Cohen and Brawer, 1989). It is just this kind of business input that appears to be lacking among four-year colleges.

Finally, higher education in increasingly involved in three-way partnerships with local industry and public high schools. The programmes are usually designed to increase the educational opportunities for high school students, encourage them to go into higher education and to develop the skills and knowledge required for the workplace. For example, the University of Missouri is involved in Project Complete, a partnership with five major corporations and four local school districts. The goal of Project Complete is to enhance the opportunities for precollegiate students and to increase the number of students who continue their education at college level, specially in science, mathematics and technology. Corporate involvement includes financial support; the provision of executives and professional personnel to serve as mentors and speakers; sponsoring special events; and offers of relevant, part-time summer employment for eligible students (Robinson *et al.*, 1991).

Project Complete is one of a number of similar programmes involving a tripartite partnership. Each year the Business-Higher Education Forum of the American Council on Education awards the Anderson Medal to the best schemes of this kinds. In 1993, the winner was the Access 2000 Chicago Partnership, a National Science Foundation aided consortium of ten organisations devoted to increasing the participation of under-represented minorities in scientific and engineering fields (Hamilton, 1993; Industry and Higher Education, 1991).

6.4 Summary

There is great interest in student outcomes assessment and the few institutions introducing it have received a great deal of publicity. Beyond this, however, evidence of widespread changes in curricula is limited.

There is significant involvement of business in higher education in the United States, especially regarding research. The interaction in terms of teaching is more limited. University-business interaction is far more likely to take the form of contributions to curricular development in two-year colleges than is the case in four-year colleges. The main exception to this is in vocationally oriented postgraduate and continuing education, where business and professional involvement in course design is more widespread.

7. Summary and Conclusions

7.1 Introduction

The aim of this study has been to provide an overview of the changes in the graduate labour market associated with the expansion of the higher education system in the United States. This final chapter summarises our main findings, highlights the lessons the US experience may have for the UK, and makes some recommendations for further research.

7.2 The US higher education system

The US higher education system differs from its UK counterpart in a number of key respects:

- Access to higher education in the United States is far broader, with 60 per cent of high school graduates going on to post-secondary education.
- There is a substantial discrepancy between participation in higher education and the outcomes from the system, with US higher education being characterised by high dropout and stopout rates — about 50 per cent of those who start a degree complete it within six years.
- Students accumulate 'credits' toward a degree, and have substantial choice in the courses they study within a framework of general education and subject specific requirements.
- The US system is far more differentiated in that it comprises a mixture of public and private institutions.
- In the US public sector there are substantial and formalised links between two-year and four-year colleges which allow students to transfer from one to the other.

As access to higher education expands and credit accumulation systems and modularisation develop in the UK, some of these differences may decline. There is already substantial similarity between the two countries in terms of trends in the composition of the student body which is increasingly older and more feminised.

7.3 Supply trends

The main expansion of the US higher education system occurred in the 1950s and 1960s. Since then the number of bachelors degrees awarded each year has tripled to over a million and there has been a four-fold increase in associate degree attainment.

As a result, the US has a highly qualified population, with over a fifth of its workforce having completed four or more years of college, up from less than ten per cent in 1960.

Students are increasingly following more vocational courses of study, with the proportion gaining degrees in business and administration, health care and engineering rising at the expense of more traditional academic subjects such as social science and the natural sciences. In recent years there has been a move away from business administration and engineering as private sector jobs in these areas have contracted. These subjects also attract fewer women and are not therefore benefiting from the continued expansion in women's degree attainment.

7.4 Demand trends

It is clear that the context within which the supply of highly educated workers increases is crucial for understanding its impact on the labour market. The most rapid growth in higher education in the US occurred at a time of economic expansion and substantial increases in the employment of highly skilled workers. This is a very different context to that in which the current UK expansion is taking place. In the US, higher education expansion was associated with a boom in graduate employment which created a 'golden era' in the graduate labour market. A bachelors degree became a 'ticket' to employment and entry into a good job with career prospects.

Beginning in the early 1970s, this golden image became somewhat tarnished as the returns to a college education declined along with the growth in starting salaries. Nevertheless, in comparison to those with no post-secondary education the advantages of a college degree remain substantial in terms of:

- Relative earnings — with median annual incomes for male and female graduates being about 60 and 66 per cent respectively more than those of their high school graduate counterparts.
- Higher labour force participation rates, especially for women.
- Lower unemployment rates.
- Better access to higher level occupations.

The labour market situation of college graduates is, however, less assured than that enjoyed by their counterparts in the 1960s. While graduates have not experienced a long term increase in unemployment rates, the expansion in supply has been associated with less favourable changes including:

- a long term increase in the number and proportion of graduates employed in jobs not traditionally requiring a degree (20 per cent in 1990)
- static real starting salaries since the early 1970s.

In addition, the early 1990s have been marked by the emergence of:

- an increase in the time it takes for many graduates to secure the kind of employment they are looking for
- more selective practices by employers, including preference toward graduates with relevant work experience (from an internship, co-operative education or a job held in college) and higher grades.

Overall, while it has become all the more necessary for individuals seeking a career to have a bachelors degree, such qualifications are no longer sufficient to guarantee access to a good job. Graduates have been forced to revise their expectations of the labour market and to recognise that in the current supply-demand situation they cannot expect their degree to give them direct access to a professional or managerial career-oriented post.

The change is graduate fortunes is not, however, simply a direct result of the expansion in the supply of graduates — the character of demand also needs to be assessed. There have been periods in the United States, most recently the mid and late 1980s, when continued growth in the supply of college graduates coincided with buoyant demand for such workers. The result was a favourable employment market for new graduates. The relative strength of the economy and its ability to absorb highly qualified labour is therefore a key determinant of the impact of an expanding supply of graduates.

7.5 Mature students

Older students account for an increasing proportion of higher education enrolments and their involvement in the post-secondary system is projected to increase over the next ten years. Students over the age of 30 account for 30 per cent of current enrolments in higher education, up from 15 per cent in 1971.

There are a number of *ad hoc* studies of mature graduates in the US and extensive national information on participation in adult education. Up-to-date national information on their labour market experiences upon graduating, however, is limited. It is confined to the Recent College Graduates Survey (RCG), a survey of graduates one year after graduation, which publishes aggregate data on those aged 26 and over. The RCG shows that relative to younger graduates those aged 26 and over were:

- more likely to be employed full-time (75 per cent compared to 68 per cent)
- less likely to be engaged in further study (five per cent compared to 16 per cent)

- slightly more likely to be unemployed (5.1 per cent compared to four per cent)
- commanding higher salaries ($26,332 a year compared to $21,585).

The data do not provide a clear picture of the labour market situation of older graduates relative to their younger counterparts and further disaggregation by age would be required to assess the experiences of those significantly older than the traditional graduate.

In terms of the advantages of gaining a degree, however, the available evidence suggests that older graduates do benefit in that graduation is associated with:

- increased labour force participation, especially among women
- a shift into more high level occupations
- changes in on-the-job benefits such as increased pay, more responsibility and increased status.

Many older students reenter education via two-year colleges seeking to develop skills appropriate to the changing demands of the US economy. An expanding area of employment in the US is in the technician category and older students willing to gain particular technical qualifications may find a ready demand for their skills.

We were unable to analyse the labour market experiences of mature graduates relative to younger students in depth. Interviews with experts in the US suggested that in some cases the increased demand for graduates with work experience could favour mature graduates, who were more likely to be able to demonstrate prior employment. The problem lay with persuading such graduates to effectively 'package' their experiences to make them relevant to the kinds of jobs they were applying for. On a less optimistic note, mature graduates were not immune from the age discrimination other older workers experience.

7.6 Sub-bachelors degree graduates

Those with some post-secondary qualifications but no bachelors degree have a more favourable labour market position than high school graduates with no further education. The main labour market advantages of these sub-degree qualifications are:

- access to higher status occupations, with holders of associate degrees and vocational qualifications being more likely to work in managerial, professional and, especially, technical occupations than those with no post-secondary qualifications
- higher salaries — those with associate degrees and vocational qualifications earn on average $1,700 and $1,200 respectively a month compared to $1,100 for high school graduates.

In addition, there is some evidence to suggest that the rate of return on attaining sub-bachelors degree qualifications is similar to that on a college degree, especially once the lower costs have been taken into account.

Beyond this, it was difficult to assess the labour market consequences of sub-degree qualifications. The advantage of pursuing such courses is likely to vary significantly by the institution attended, the course followed, and the characteristics of the local labour market.

The National Center for Education Statistics is currently conducting a study of the outcomes of all post-secondary study, which includes graduates from two-year colleges, and this should allow analysis of the labour market experiences of such graduates. It should also provide a better picture of the experiences of mature graduates, many of whom gain post-secondary qualifications at the sub-degree level.

7.7 Curricular change and university-business links

Employer influence on curricular development is far more evident in two-year college courses than their four-year counterparts. Community colleges are more responsive to local economic conditions and employers and local businesses are often involved in the establishment and design of courses aimed at developing particular skills in the local population.

There are, however, a number of instances in which employers have contributed to course development, particularly at the postgraduate and continuing education levels. In addition, the current concern with assessing what students learn from post-secondary education is leading to increased interest in those colleges which have introduced outcomes assessment procedures. A key example of this is Alverno College which has reorganised its entire curriculum around the development of eight abilities.

7.8 Lessons for the UK

This section highlights some of the issues relevant to the UK which have emerged from this study. While the two countries' higher education systems remain different, there are some lessons which the UK can learn from the US experience.

Advantage of higher education qualifications

Despite the increase in the number of new graduates in the US, higher education is greatly valued. It remains a major avenue through which individuals can improve their job prospects, and income data show a strong relationship between earnings and educational level. While the current high levels of graduate unemployment in the UK may be causing some to question the value of higher education, long term evidence from the US suggests that it confers significant economic advantages.

Utilisation of graduates

An increasing proportion of graduates in the US are classified as being in jobs not requiring a degree. Anecdotal evidence from the UK suggests that this is emerging as an issue for the graduate labour market in this country. While there is debate about the extent to which graduates classified as underutilised are in reality failing to use fully the skills they have acquired, some changes in the types of jobs held by graduates seem likely. The main issue here will be one of managing the expectations of new graduates and encouraging them to view their entry into jobs not traditionally held by graduates in a positive rather than a negative light.

Work experience

One of the recent changes in the US graduate labour market has been the increased importance employers are attaching to work experience when recruiting. In particular, there is an emerging tendency for US employers to recruit graduates who have previously worked for them, either through an internship or co-operative education programme. As a result, students are having to plan their entry into the labour market at an early stage in their studies and Careers Advisors are increasingly involved in organising internships and other work experience for students. Some UK universities are beginning to offer internship programmes and the importance of these may well increase as the number of graduates rises.

New sources of employment: small and medium sized firms

As the large US companies which have traditionally recruited graduates cut the size of their workforces, much of the growth in employment is expected to be in small and medium sized firms. A similar trend is evolving in the UK and graduates may need to expand their job search activities to include small and medium sized firms. This again means that Careers Advisors will need to manage the expectations of students and both promote graduates as potential recruits to smaller employers and encourage students to apply to such firms. In addition, the way students look for jobs may have to change. Smaller firms may not be familiar with the campus based recruitment activities prevalent among larger firms and students may need to rely more on speculative applications and personal contacts or networking.

Personal and core skills

This research has shown that employers are looking for a range of personal and core skills in applicants. A similar trend has emerged in the UK and there may be increasing pressure on higher education institutions to ensure that students develop these skills. There are a number of initiatives in the US aimed at assessing the learning outcomes of higher education which may be a useful model or guide for institutions in the UK.

Postgraduate qualifications

A high proportion of US graduates engage in additional education once they have completed their bachelors degree. They do not necessarily go straight into a postgraduate course, but return to postgraduate study after some years in the labour market or while remaining in employment. This is also increasingly the case in the UK and the concept of continuing education, whereby education is viewed as a lifelong process rather than one which occurs at a specific point in time, may become more prevalent. It is already the case that access to many professions in the UK is dependent upon gaining postgraduate qualifications and given the experience of the US this trend is unlikely to be reversed.

Sub-degree qualifications

Associate and vocational degrees are readily accepted in the US labour market and individuals with these qualifications do well relative to those with no post-secondary education. Sub-degree qualifications are particularly attractive to mature students who are looking to develop relevant skills but cannot afford to undertake four years of full-time study. The UK could explore the possibility of developing awareness of sub-degree courses and their benefits among potential mature students. In addition, there may be something we can learn from the pattern of employer involvement in the design of sub-degree courses in the US which helps to ensure that the skills learnt are relevant to the labour market.

Varied patterns of participation in higher education

The relatively open access to higher education and varied paths US students can follow toward a degree means that the opportunity for post-secondary study is available to a high proportion of the population. This has been accompanied by high rates of dropping out or stopping out and an increase in the time it takes to get a degree. While this may well be an acceptable cost, UK institutions need to recognise that increases in the number of students may lead to more varied patterns of participation in higher education.

7.9 Recommendations for further research

This study has touched on a broad range of issues relating to the labour market for new graduates in the United States. Each of these issues could have constituted a study in its own right and several could be explored in greater depth. They include:

The postgraduate labour market

The UK is currently experiencing rapid growth in the number of students going on to postgraduate study. Much of this is self-funded and students believe that a postgraduate degree will give them an advantage in the labour market. The current study of the US has not explored the issue of postgraduate degrees and the labour market experiences of those with such qualifications. Given the emerging importance of the postgraduate labour market in the UK, research on the US labour market for postgraduates may provide some useful insights into the kinds of changes we can expect in this country.

The impact of changing higher education funding patterns

There is a considerable literature on the impact of different forms of student funding in the US. The UK is currently changing the emphasis of its funding of students in higher education and many students are increasingly reliant on loans and paid employment while at university, to fund their studies. It may therefore be useful to look at the impact of changes in the way higher education is funded on access to, and progress within, higher education in the UK, as well as any implications they have for graduates' entry into the labour market. In addition, there are other labour market implications for the rise in student employment which could be explored. For example, in the US many students finance their education by working in libraries, cafeterias and laboratories on campus. If this develops in the UK it may have an effect on local labour markets in university towns as existing workers are displaced by student employees.

The labour market for sub-degree graduates

Relatively little is known about the UK labour market for people with sub-degree qualifications. Recipients of such qualifications are not routinely followed up six months after graduation (as is the case with first degree graduates and postgraduates) and little is known about employer demand for individuals with these qualifications.

Changing employer demand

The demand from employers for graduates with work experience and a range of personal skills is clear in the US and is beginning to develop in the UK. A more exact understanding of what employers are looking for and the extent to which UK graduates meet these criteria has not yet been developed. Research into this area could address the issue of skills mismatch. In addition, employer demand for graduates with work experience has implications for Careers Services. An evaluation of how they are developing their role and the effect this is having on graduate employment would provide useful information for all those involved in graduate employment issues.

A1. Sources of Data on the US Graduate Labour Market

This section provides information on the sources of data and information used in the study. It outlines the coverage of each source and assesses its reliability. We have used three main categories of information:

- federal government surveys and censuses
- surveys by research institutions and graduate recruitment agencies
- information from organisations

A1.1 Federal surveys and censuses

There are a number of federal surveys which collect information on graduates and the labour force. These are divided into two main categories: those concerned with the population in general and those dealing explicitly with information on the educational system. We have used both kinds types of data in this study and provide information on the main surveys in each category below.

A1.1.1 Population based surveys

The two main surveys which provide information on the labour market and the workforce in the US are the Current Population Survey and the Survey of Income and Program Participation.

The Current Population Survey (CPS) is a monthly sample survey of the US population. The March survey of each year seeks information on individuals' educational levels in addition to core data on their labour force participation and earnings. In 1991 57,400 households were interviewed. Results are reported only when the base is 75,000 or greater.

The educational levels used in the Current Population Survey record the years of schooling completed at each level (*eg* one to three years of college, or 12 years of school) and not actual degree attainment. The survey only therefore provides an approximation, albeit a good one, of the actual level of education attained by the population.

The CPS is a longstanding survey and provides information going back to 1940. For this reason, it is a key source of historical data. The data referenced US Bureau of the Census 1992b in Chapters 3 and 4 are derived from the CPS.

The Survey of Income and Program Participation (SIPP) collects data on the economic situation of households and persons in the United States. It is a panel survey conducted by the US Bureau of the Census and first took place in October 1983. The survey records the basic social and demographic characteristics for each person in the household at the time of interview, sources and amount of income, labour force activity, attendance in post-secondary education and information on degrees and work training. Much of the information in Chapter 3 on educational attainment and the economic benefits of different levels of education is derived from reports based on SIPP results. The advantage of the SIPP over the CPS is that it records data on actual degree attainment rather than years of schooling at different levels.

In 1990, the sample comprised 29,000 housing units selected to represent the noninstitutional population of the US. About 23,600 of these were occupied and eligible for interview. Non-response among those eligible for interview was about 12 per cent. The reference period for questions is the four month period preceding the interview.

The relatively small sample means that SIPP is subject to sampling and non-sampling error. Estimates of sampling error are provided in the reports. Non-sampling error cannot be estimated, although quality control procedures seek to reduce some of these errors and efforts are made to control for survey undercoverage. Results are reported only for those measures for which the base is 200,000 or greater.

A1.1.2 Education statistics

The US National Center for Education Statistics co-ordinates a range of surveys on issues relating to education. In this report, we have made extensive use of a number of these, including:

- High School and Beyond (HS&B) and other longitudinal studies
- HEGIS and IPEDS
- Projections of Education Statistics
- Recent College Graduates.

High School and Beyond is a national longitudinal sample survey of 1980 high school sophomores (penultimate year) and seniors (final year). The base-year survey was a probability sample of 1,015 high schools with a target number of 36 sophomores and 36 seniors in each of the schools. A total of 58,270 students participated in the base-year survey which had an 82 per cent completion rate.

A sub-sample of the original HS&B participants was followed up in spring 1982, spring 1984 and spring 1986. In each of these surveys the completion rate was high, at about 90 per cent (*The Condition of Education*, 1992, p.382-3).

The National Education Longitudinal Study (NLS) of the high school class of 1972 began with the collection of base-year survey data from a sample of about 19,000 high school seniors. Five follow up surveys of these students were conducted in 1973, 1974, 1976, 1979 and 1986.

The survey was designed to provide information on the transitions of young adults from high school through post-secondary education to the workplace. About 1,070 schools were selected for participation in the base-year survey. Response rates were high, at around 80 per cent, as were sample retention rates, about 90 per cent.

A third longitudinal study, the National Educational Longitudinal Study of 1988 (NELS:88), began with a cohort of eighth grade students (aged about 14). The base-year data were based on a representative sample of 1,000 schools and 26,000 students selected at random. In 1990 these students were followed up and similar exercises are planned for 1992, 1994, and 1996.

Data on enrolment and degrees conferred are derived from the Higher Education General Information Survey (HEGIS) and the Integrated Post-secondary Education Data System (IPEDS). The former was an annual universe survey of most post-secondary institutions. It was superseded in 1986 by IPEDS an annual survey of post-secondary institutions. All education institutions are surveyed in addition to a sample of other technical and vocational institutions. IPEDS obtains information on who provides post-secondary education (institutions), who participates in it and completes it (students), what programs are offered and the qualifications awarded, and the resources involved in the provision of post-secondary education (*Digest of Education Statistics 1993*, p.443; *Condition of Education*, 1992, p.384-5).

The National Center for Education Statistics also provides projections of education statistics including enrolments, graduates and degrees earned. Data from the middle alternative projections are used in this report, although NCES also provide low and high alternatives. Evaluation of past projections shows that at the higher education level projections of enrolment have been quite accurate at within five per cent for projections from one to five years into the future. NCES does, however, caution users not to place too much confidence in the numerical values of the projections, particularly at the higher education level (*Digest of Education Statistics 1993*, p.451).

The Survey of Recent College Graduates is conducted periodically by the National Center for Education Statistics. It collects data on college graduates about one year after graduation and is designed to assess the outcomes of a college education. Surveys have been conducted in 1977, 1981, 1985, 1987 and 1991. The latest survey (1991) collected information on about 14,405 graduates. In previous surveys the response rate had been lower than for other surveys (down to 62 per cent in 1981) because of the difficulty in tracing students after graduation. Some of these problems have been eased by telephone survey techniques which allow early identification of problems tracing students and for the 1991 a student response rate of 83 per cent was achieved. The NCES warns that users should be cautious about drawing conclusions based on small samples of the data (*Condition of Education*, 1992, p.391; NCES, 1993).

Two national longitudinal studies due to be published in the mid-1990s will provide valuable additional information on the outcomes

from post-secondary education. *Baccalaureate and Beyond* is a study of those who graduated in 1992/93 one year after graduation. It is similar to the Recent College Graduates survey, which it has replaced, with the important exception that there will be a further follow-up study in 1997 to collect details of work history and additional educational attainment. In addition, it is not a sample survey and so will be able to provide accurate details of graduates' experiences broken down by characteristics such as age, ethnicity, sex *etc*.

The second new study, *Beginning Post-secondary Students* study, focuses on all types of post-secondary students, including those graduating from vocational courses and two-year colleges. Students in the 1990 National Post-secondary Student Aid Study were followed-up in 1992 and the results of the survey will be published in mid-1994,.

These government data sets provide information that has been widely used in analysis. They appear to be reliable although some of the education statistics are based on small samples which cannot be finely disaggregated.

A1.2 Other sources of survey information

A number of non-federal institutions collect data on the national labour market for US graduates, in particular the number of job offers and salaries. The three main institutions involved in this kind of activity are:

- College Placement Council (CPC)
- Collegiate Employment Research Institute, Michigan State University
- The Placement Center, Northwestern University.

The CPC is the central body to which a large fraction of College Placement Centers (the equivalent of UK Graduate Careers Advisory Services) belong. A large number of employers (over 1,000) are also members. The CPC conducts three surveys of its members: the Salary Survey, College Relations and Recruitment Survey, and Job Outlook.

Since 1963 the CPC has conducted an annual survey of college career planning and placement offices in order to obtain information on new graduate salaries. In 1993, 402 such organisations responded to the survey. This data have two major limitations. First they are based on a representative sample of actual starting offers reported to college and university on-campus placement offices by employers and students. They do not, therefore, correspond with actual starting salaries accepted by graduates. Actual salaries are unlikely to be lower than the reported offer but students may negotiate a higher salary. As a result, the reported average offer is probably lower than the actual.

Second, prior to the 1972/3 academic year the data were based on offers to male graduates only while subsequent data reflect offers to both male and female graduates. This may account for some of the sharp decline in salaries reported in the early 1970s.

The College Relations and Recruitment Survey is a periodic study based on responses from employer members. It provides information on recruitment and recruiting practices. The latest survey reports the results from 624 usable questionnaires, a response rate of 43 per cent.

The CPC also conducts a survey on recruiting projections to assess the job market for new college graduates. In 1993, this was published as Job Outlook '94 in their newsletter, *Spotlight*. The 1993/94 survey was based on responses from 245 employer members of CPC. This represented a low proportion of the total surveyed (19 per cent). In the absence of published details of the response rate, the results should be treated with some caution.

The Collegiate Employment Research Institute of the University of Michigan also conducts an annual survey of starting salaries and recruitment activity and practices (see Scheetz in the bibliography). The survey is sent to a sample of national business, industry and government employers. A sample of small businesses is included in the study. Response rates tend to be low. The 1992 study was based on usable responses from 554 employers or just over 11 per cent of those surveyed (Scheetz, 1992, p.iv). Again, it is not clear from the published reports whether there was any bias in the response.

Northwestern University conducts a similar study to that undertaken by CERI. It is published annually as the *Northwestern Lindquist-Endicott Report* and provides information on the salaries and job offers made to graduates by discipline and a range of recruitment issues. The 1992 report was based on usable responses from 258 national employers. The report does not provide information on how many organisations were initially surveyed and so no response rate can be calculated. This makes it difficult to provide an assessment of the reliability of the study.

The main problem with these studies is their low or unknown response rate and, in comparison with the total population of organisations, the limited number of employers providing information. While the data reported from these studies may therefore provide an indication of trends in graduate recruitment and starting salaries, they do not constitute a comprehensive analysis of the entire graduate market. This limitation needs to be recognised in interpreting the information derived from these surveys. The surveys do, however, provide an extremely valuable source of information on general trends and emerging issues.

In this study, we have sought to ensure the accuracy of the trends reported from these surveys by, where possible, analysing data from more than one survey and only reporting consistent patterns.

A1.3 Organisations

Other organisations providing data for this study included:

- The National Association of Returning Students (NARS), P O Box 3283, Salem, Oregon 97302, USA
- The Commission on Professionals in Science and Technology (CPST), 1500 Massachusetts Avenue NW, Suite 831, Washington DC 20005, USA
- The American Council on Education, One Dupont Circle, Washington DC 20036, USA
- Higher Education Research Institute, UCLA Graduate School of Education, 405 Hilgard Ave, Los Angeles, CA 90024, USA
- Cooperative Education Research Program, Wayne State University, 656 West Kirby, Detroit, MI 48202, USA
- National Association of Independent Colleges and Universities, 122 C Street NW, Suite 750, Washington DC, 20001-2190, USA.

Bibliography

Acs G, Danziger S, (1993) 'Educational Attainment, Industrial Structure and Male Earnings Through the 1980s', *Journal of Human Resources*, 28:3, pp.618-648

Adelman C, (1988) 'Transfer Rates and the Going Mythologies: A Look at Community College Patterns', *Change*, January/ February, pp.38-41

Alsalam N, (1993) 'Interpreting Conditions in the Job Market for College Graduates', *Monthly Labor Review*, February, pp.51-53

Alverno College (nd), *Alverno College: Ability Based Learning Program*, mimeo

Amirault T A, (1990) 'Labour Market Trends for New Graduates', *Occupational Outlook Quarterly*, Autumn (34:3), pp.10-21

Andersen C J, (1990) 'Enrollment by Age: Distinguishing the Numbers from the Rates', *Research Briefs*, 1:7, American Council on Education, Washington DC

Anderson K L, (1981) 'Post-High School Experiences and College Attrition', *Sociology of Education*, 54:1, pp.1-15

Arrow K J, (1973) 'Higher Education as a Filter', *Journal of Public Economics*, Vol. 2, pp.193-216

Astin A W, (1992) 'Educational Choice: Its Appeal May Be Illusory', *Sociology of Education*, 65:4, pp.255-260

Astin A W, (1991) 'The Changing American College Student: Implications for Educational Policy and Practice', *Higher Education*, 22:2, pp.129-143

Bailey T, (1991) 'Jobs of the Future and the Education They Will Require: Evidence from Occupational Forecasts', *Educational Researcher*, Vol. 2, pp.11-20

Baxter N, (1991) 'Careers 101: Occupational Education in Community Colleges', *Occupational Outlook Quarterly*, Spring, pp.13-22

Benoist H, (1987) 'The Role of Academic Program Review in University-Business Interaction', *North Central Quarterly Association*, Vol. 61, pp.497-502

Berdahl R O, Moodie G C, Spitzberg I J, (1991) ***Quality and Access in Higher Education: Comparing Britain and the United States,*** **Society for Research into Higher Education and The Open University Press, Milton Keynes**

Borbely E G, (1993) 'A Partnership with Industry: Off-campus Graduate Education Programme at Columbia University', *Industry and Higher Education*, 7:3, pp.135-140

Borus M E (ed.), (1984) *Youth and the Labour Market: Analyses of the National Longitudinal Survey,* W E Upjohn Institute for Employment Research, Kalamazoo, Michigan

Burris V, (1983) 'The Social and Political Consequences of Overeducation', *American Sociological Review,* Vol. 48, pp.454-467

Callan P M, (1993) 'Government and Higher Education, in Levine A (ed.), *Higher Learning in America 1980-2000,* The Johns Hopkins University Press, Baltimore, pp.3-19

Carnegie Commission on Higher Education, (1973) *College Graduates and Jobs: Adjusting to a New Labor Market Situation,* McGraw Hill, New York

Carnegie Foundation for the Advancement of Teaching, (1989) *New Strategies Keep Enrollments Growing,* Change, January/February , pp.3943

Carter D J, Wilson R, (1993) *Minorities in Higher Education: 1992 Eleventh Annual Status Report,* American Council on Education, Washington

Carter D J, (1990a) 'Racial and Ethnic Trends in College Participation: 1976 to 1988', *Research Briefs* 1:3, American Council on Education,Washington DC

Carter D J, (1990b) 'Community and Junior Colleges: A Recent Profile', *Research Briefs* 1:4, American Council on Education, Washington DC

Change, (1986) 'Part-timers: Myths and Realities', July/August, pp.49-53

Change, 'Minority Access: A Question of Equity', May/June

Clowes D A, Hinkly D E, Smart J C, (1986) 'Enrollment Patterns in Post-secondary Education, 1961-1982', *Journal of Higher Education,* 57:2, pp.121-133

Cohany S, (1986) 'What Happened to the High School Class of 1985', *Monthly Labor Review,* 109:10, pp.28-30

Cohen A M, (1993) *Analyzing Community College Student Transfer Rates: May 1993,* Paper presented at The Association for Institutional Research Annual Meeting, Chicago, May 19

Cohen A M, Brawer F B, (1989) *The American Community College*, Jossey-Bass Publishers, San Francisco

Condition of Education 1992, US Department of Education, NCES 92-096, US Government Printing Office, Washington DC

Connell M L, (1991) *Starting Salary Offers: An Historical Perspective 1962-1990*, College Placement Council Inc., Bethlehem PA

CPC, (1992) *College Relations and Recruitment Survey 1992*, College Placement Council Inc., Bethlehem, PA

CRAC, (1992) *Transposing Experience: A report of the UK Study Visit to the NAPE International Symposium on Partnerships in Education 1991*, CRAC, Cambridge

Cross P, (1993) 'Improving the Quality of Instruction', in Levine A (ed.), *Higher Learning in America 1980-2000*, The Johns Hopkins University Press, Baltimore, pp.287-308

Crusoe J A, (1993) *Co-operative Education Student Employee Salary and Benefits Survey 1992*, Co-operative Education Research Program, Wayne State University, Detroit

CSU Statistical Quarterly, (1993) November, CSU, Manchester, UK

DES, (1990) *Aspects of Education in the USA: Vocational and Continuing Education*, Department of Education and Science, HMSO, London

DES, (1989) *Aspects of higher education in the United States: A Commentary by Her Majesty's Inspectorate*, Department of Education and Science, HMSO, London

Digest of Education Statistics 1993, (1993) US Department of Education, Office of Educational Research and Improvement, NCES 93-292, US Government Printing Office, Washington DC

Dougherty K J, (1992) 'Community Colleges and Baccalaureate Attainment', *Journal of Higher Education*, 63:2, pp.188-214

Dougherty K J, (1991) 'The Community College at the Crossroads: The Need for Structural Reform', *Harvard Educational Review*, 61:3, pp.311-336

Duncan G J, Hoffman S D, (1981) 'The Incidence and Wage Effects of Overeducation', *Economics of Education Review*, 1:1, Winter, pp.75-86

Eagle E, (1988) *A Descriptive Summary of 1972 High School Seniors: Fourteen Years Later*, US Government Printing Office, Washington DC

ECS, (1991) *Graduate Market Survey: United States of America*, Education Counselling Service/British Council, March

Farnham A, (1993) 'Out of College, What's Next?, *Fortune*, July 12, pp.58-64

Fechter A, (1993), Shortage of College Graduates? More Evidence is Needed', *Monthly Labor Review*, February, pp.53-54

Freeman, R B, (1980) 'The Facts About the Declining Economic Value of College', *Journal of Human Resources*, 15:1, Winter, pp.124-142

Freeman R B, (1976) *The Overeducated American*, Academic Press, New York

Freund W H, (1991) *Race/Ethnicity Trends in Degrees Conferred by Institutions of Higher Education 1978-79 thru 1988-89*, Government Printing Office, Washington

Gardner P D, Kozlowski S W J, Broadus A, (1988) *The Ideal Job Candidate: What Recruiters Would Like to See*, Collegiate Employment Research Institute, Michigan State University, East Lansing, Michigan

Gardner, P D, Motschenbacher G, (1993) *More Alike than Different: Early Work Experiences of Co-op and Non Co-op Engineers*, Collegiate Employment Research Institute, Michigan State University, East Lansing, Michigan

Gladieux L E, (1989) 'The Student Loan Quandary: Are There Workable Alternatives?', *Change*, May/June, pp.35-41

Gordon M, (1993) 'The Economy and Higher Education', in Levine A (ed.), *Higher Learning in America 1980-2000*, The Johns Hopkins University Press, Baltimore, pp.20-35

Gordon M, (1974) *Higher Education and the Labour Market*, McGraw-Hill, New York

Grubb W N, (1991) 'The Decline of Community College Transfer Rates: Evidence from National Longitudinal Surveys', *Journal of Higher Education*, 62:2, pp.194-222

Grubb W N, (1989) 'Dropouts, Spells of Time and Credits in Post-secondary Education: Evidence from Longitudinal Surveys', *Economics of Education Review*, 8:1, pp.49-67

Hackett E J, Croissmand J, Schneider B, (1992) 'Industry, Academe and the Values of Undergraduate Engineers', *Research in Higher Education*, 33:3, pp.275-295

Hamilton E, (1993), 'The Access 2000 Chicago Partnership: Seven Models for Self-interest Through Public Interest', *Industry and Higher Education*, 7:3, pp.151-154

Haspel A E, (1978) 'Questionable Role of Higher Education as an Occupational Screening Device', *Higher Education 7*, pp.279-294

Hauser R M, Anderson D K, (1991) 'Post High School Plans and Aspirations of Black and White High School Seniors 1976-1986', *Sociology of Education*, 64:4, pp.263-277

Hecker D E, (1992a) 'Reconciling Conflicting Data on Jobs for College Graduates', *Monthly Labor Review*, July, pp.3-11

Hecker D E, (1992b) 'College Graduates: Do we have too many or too few?', *Occupational Outlook Quarterly*, Summer (36:2), pp.13-23

Hexter H, Lippincott J K, (1990) 'Campuses and Student Assessment', *Research Briefs*, 1:8, American Council on Education, Washington DC

Hodges L, (1994a) 'Pressure to End Standards Circus', *THES*, January 14, p.8

Hodges L, (1994b) 'US Regions Reach Quality Accord', *THES*, February 4, p.8

Hostettler R K, Swift Jr J, (1987) 'The College Placement Office and Small Business: Building a Linkage', *Journal of Employment Counseling*, 24:4, pp.146-154

Hunt E S, (1992) 'United States,' in *From Higher Education to Employment Volume II: Canada, Denmark, Spain, United States*, OECD, Paris, pp.129-242

Industry and Higher Education, (1991) 'Bridgeport Futures Initiative: A Partnership on Behalf of Youth', December, pp.233-237

Jackson G A, (1980) 'How Students Pay for College: Temporal and Individual Variation', *Higher Education 9*, pp.619-632

Johnston W B, Packer A E, (1987) *Workforce 2000: Work and Workers for the Twenty-first Century*, Hudson Institute, Indianapolis

Katz L F, Murphy K M, (1992) 'Changes in Relative Wages, 1963-1987: Supply and Demand Factors', *Quarterly Journal of Economics*, 107:1, pp.35-78

Kempner K, Kinnick M, (1990) 'Catching the Window of Opportunity: Being on Time for Higher Education', *Journal of Higher Education*, 61:5, pp.535-547

Kingston P W, Smart J C, (1990) 'The Economic Pay-off of Prestigious Colleges', in Kingston P W and Lewis L S (eds.), *High-Status Track: Studies of Elite Schools and Stratification*, State University of New York Press, Albany

Kivinen O, Rinne R, (1993) 'Educational Qualifications and the Labour Market', *Industry and Higher Education*, June, pp.111-118

Knepper P R, (1989) *Student Progress in College: NLS-72 Post-secondary Education Transcript Study 1984*, US Government Printing Office, Washington DC

Koltai L, (1993) 'Community Colleges: Making Winners Out of Ordinary People', in Levine A (ed.), *Higher Learning in America 1980-2000*, The Johns Hopkins University Press, Baltimore, pp.100-113

Kramer, D C, (1986) 'The Verbally Talented: Unloved, Unwanted and Social Dynamite', *Community Review*, 6:2, pp.28-37

Lamdin L, (1991) 'Support and Recognition for Workplace Learning: A US Perspective', *Industry and Higher Education*, December, pp.201-208

Lampe D R, Johnson E C, (1990) 'MIT's Industrial Liaison Program: Maintaining a Culture of Cooperation', *Industry and Higher Education*, 4:3, pp.175-182

Lane R V, Ulman L, (1974) 'The Utilization of College-trained Manpower in the United States', in Gordon M S (ed.), *Higher Education and the Labour Market*, McGraw Hill, New York

Layard R, Psacharopoulos G, (1974) 'The Screening Hypothesis and Returns to Education', *Journal of Political Economy*, Vol. 82, pp.985-98

Leslie L, Brinkman P, (1986) 'Rates of Return to Higher Education', in Smart J C (ed.), *Higher Education: Handbook of Theory and Research Volume 2*, Agathon, New York

Levin H M, (1978) 'What are the Returns on a College Education?', in Peltason J W and Massengale M V (eds.), *Students and Their Institutions*, American Council on Education, Washington, pp.1982-92

Levin H M, (1987) 'Improving Productivity Through Education and Technology', in Burke G and Rumberger R W (eds.), *The Future Impact of Technology on Work and Education*, The Falmer Press, London, pp.194-214

OECD, (1992) *Education at a Glance*, OECD, Paris

Levy F, Murnane R J, (1992) 'US Earnings Levels and Earnings Inequality: A Review of Recent Trends and Proposed Explanations', *Journal of Economic Literature*, Vol. 30, pp.1333-1381

Lindquist V R, (1992) *The Northwestern Lindquist-Endicott Report 1993*, The Placement Center, Northwestern University, Evanston, Illinois

Loveman G W, Tilly C, (1988) 'Good Jobs or Bad Jobs?: Evaluating the American Job Creation Experience', *International Labour Review*, 127:5, pp.593-612

Manpower Comments (1992a), September, CPST, Washington DC

Manpower Comments (1992b), November, CPST, Washington DC

Mentkowski M, Doherty A, (1984) 'Abilities That Last a Lifetime: Outcomes of the Alverno Experience', *AAHE Bulletin*, 36:6

Miller R I, (1990) *Major American Higher Education Issues and Challenges in the 1990s*, Higher Education Policy Series 9, Jessica Kingsley, London

Mishler C J, (1983) 'Adults' Perceptions of the Benefits of a College Degree', *Research in Higher Education*, 19:2, pp.213-230

Moebus T R (1991), 'New Partnerships at MIT', *Industry and Higher Education*, September, pp.165-167

Mueller R O, (1988) 'The Impact of College Selectivity on Income for Men and Women', *Research in Higher Education*, 29:2, pp.175- 189

Murphy K M, Welch F, (1993) 'Industrial Change and the Rising Importance of Skill', in Danziger S and Gottschalk P (eds.), *Uneven Tides: Rising Inequality in America*, Russell Sage Foundation, New York, pp.101-132

Murphy K M, Welch F, (1992) 'The Structure of Wages', *Quarterly Journal of Economics*, 107:1, pp.285-236

Murphy K M, Welch F, (1989) 'Wage Premiums for College Graduates: Recent Growth and Possible Explanations', *Educational Researcher*, 18:4, pp.17-34

National Center for Education Statistics, (1993) *Occupational and Educational Outcomes of Recent College Graduates One Year After Graduation: 1991*, Contractor Report, NCES 93-162, US Government Printing Office, Washighton DC

National Center for Education and the Economy, (1990) *High Skills or Low Wages: America's Choice*, National Center for Education and the Economy, Washington, DC

Nora A, Horvath F, (1989) 'Financial Assistance: Minority Enrollments and Persistence', *Education and Urban Society*, 21:3, pp.299-311

Nugent M L, (1992) 'Critical Success Factors and Benefits of Corporate-education Partnerships', *Industry and Higher Education*, June, pp.70-74

Ottinger C, (1991) 'College Going, Persistence, and Completion Patterns in Higher Education: What do we know?', *Research Briefs* 2:3, American Council on Education, Washington, D C

O'Brien E M, (1992) 'Part-time Enrollment: Trends and Issues', *Research Briefs* 3:8, American Council on Education, Washington, DC

Pascarella E T, Smart J C, Smylie M A, (1992) 'College Tuition Costs and Early Career Socioeconomic Achievement: Do You Get What You Pay For?', *Higher Education*, 24:3, pp.275-290

Pascarella E T, Terenzini P T, (1991) *How College Effects Students: Findings and Insights from Twenty Years of Research*, Jossey-Bass Publishers, San Francisco

Pencavel J, (1991) 'Higher Education, Productivity and Earnings: A Review', *Journal of Economic Education*, 22:4, pp.331-359

Perlman R, (1988) 'Education and Training: an American Perspective', *Oxford Review of Economic Policy*, 4:3, pp.82-93

Porter J, (1989) *Occupational and Educational Outcomes of 1985-86 Bachelor's Degree Recipients*, US Government Printing Office, Washington DC

Porter O, (1989) *Undergraduate Completion and Persistence at Four-year Colleges and Universities: Completers, Persisters, Stopouts and Dropouts*, National Institute of Independent Colleges and Universities, Washington DC

Powers, D R *et al.*, (1988) *Higher Education in Partnership With Industry: Opportunities and Strategies for Training, Research and Economic Development*, Jossey-Bass Publishers, San Francisco

Pritchard C J, (1993) 'Small Employers: How, When and Who They Hire', *Planning Job Choices: 1994*, 37th edition, CPC Inc., Bethlehem, PA

Projections of Education Statistics to 2003, US Department of Education, Office of Educational Research and Improvement, NCES 92-218, US Government Printing Office, Washington DC

Psacharopoulos G, (1985) 'Returns to Education: A Further International Update and Implications', *Journal of Human Resources*, 20:4, pp.

Psacharopoulos G, (1973) *Returns to Education: An International Comparison*, Elsevier

Raymond R, Sesnowitz M, (1975) 'The Returns to Investments in Higher Education: Some New Evidence', *Journal of Human Resources*, Vol. 10, pp.139-154

Robinson D W *et al.*, (1991) 'Partnerships for Progress: Project Complete — An Initiative of the University of Missouri, St Louis', *Industry and Higher Education*, 5:2, June, pp.79-86

Roggenbuck S S, (1993) 'Recruiting Trends 1992-93', *Collegiate Employment Institute Newsletter*, Winter, pp.1-3

Roggenbuck S S, (1992) 'Recruitment Practices in the '90s', *Collegiate Employment Institute Newsletter*, Autumn, pp.4-5

Rumberger R W, (1984) 'The Job Market for College Graduates, 1960-90', *Journal of Higher Education*, 55:4, pp.433-454

Rumberger R W, (1984) 'The Growing Imbalance Between Education and Work', *Phi Delta Kappa*, 65:5, pp.342-346

Rumberger R W, (1984) 'The Incidence and Wage Effects of Occupational Training Among Young Men', *Social Science Quarterly*, 65:3, pp.775-88

Rumberger R W, (1981) 'The Changing Skill Requirements of Jobs in the US Economy', *Industrial and Labor Relations Review*, 34:4, pp.578-590

Rumberger R W, (1980) 'The Economic Decline of College Graduates: Fact or Fallacy?', *Journal of Human Resources*, 15, pp.99- 113

Rumberger R W, Burke G (eds.), (1987) *The Future Impact of Technology on Work and Education*, Falmer Press, London

Scheetz P L, Gardner P D, (1993) *Employment Survey of Michigan College Graduates: Report of Destinations, Average Starting Salaries and Unemployment 1990-91*, Collegiate Employment Research Institute, Michigan State University, East Lansing, Michigan

Scheetz P L, Gardner P D, (1990) *Employment Survey of Michigan College Graduates: Report of Destinations, Average Starting Salaries and Unemployment 1988-89*, Michigan State University Career Development and Placement Services, East Lansing, Michigan

Scheetz P L, (1993) *Recruiting Trends 1993: Spring Update*, Collegiate Employment Research Institute, Michigan State University, East Lansing, Michigan

Scheetz P L, (1992) *Recruiting Trends 1992-93*, Collegiate Employment Research Institute, Career Development and Placement Services, Michigan State University, East Lansing, Michigan

Scheetz P L, Crusoe J A, (1988) *MCPA Placement Activities Report for 1986-87: A Study of Career Planning, Placement, Cooperative Education and Student Employment Statistics from MCPA Two-year and Four-year Colleges and Universities*, Collegiate Employment Research Institute, Michigan State University, East Lansing, Michigan

Schockey J W, (1989) 'Overeducation and Earnings: A Structural Approach to Differential Attainment in the US Labor Force 1970-1982', *American Sociological Review*, 54, pp.856-864

Schrof J M, (1993) 'Community Colleges: Growing in Appeal', *US News and World Report*, October 4, pp.126-27

Schwartz E, Thornton R, (1980) 'Overinvestment in College Training?, *Journal of Human Resources*, 15:1, pp.121-23

Shelley K J, (1992) 'More Graduates May be Chasing Fewer Jobs', *Occupational Outlook Quarterly*, Summer (36:2), pp.5-11

Shelly K J, (1992) 'The Future Jobs for College Graduates', *Monthly Labor Review*, July

Shingleton J D, (1993) 'Planning Your Job Choices: The Job Market for '94 Grads', *Planning Job Choices: 1994*, 37th edition, CPC Inc., Bethlehem, PA

Silvestri G, Lukasiewicz J, (1991) 'Occupational Employment Projections', *Monthly Labor Review*, 114:11, November, pp.64-94

Simpson M G, (1973) 'Costs and Benefits of Mass Higher Education', *Higher Education*, 2:2, pp.203-208

Smart J C, (1988) 'College Influences on Graduates' Income Levels', *Research in Higher Education*, 29:1, pp.41-59

Smart J C, (1986) 'College Effects on Occupational Status Attainment', *Research in Higher Education*, 24:1, pp.73-95

Smart J C, (1986) 'College Effects on Occupational Status and Attainment', *Research in Higher Education*, 24:1, pp.73-95

Smart J C, Pascarella E T, (1987) 'Influences on the Intent to Re-enter Higher Education', *Journal of Higher Education*, 58:3, pp.306-322

Smith V, (1993) 'New Dimensions for General Education', in Levine A (ed.), *Higher Learning in America 1980-2000*, The Johns Hopkins University Press, Baltimore, pp.243-258

Smith H L, (1986) 'Overeducation and Underemployment: An Agnostic Review', *Sociology of Education*, 59:2, pp.85-99

Smith J P, Welch F, (1978) 'The Overeducated American?: A Review Article', *The Rand Paper Series*, Santa Monica, November

Solmon L C, La Porte M A, (1986) 'The Crisis of Student Quality in Higher Education', *Journal of Higher Education*, 57:4, pp.370-392

Solmon L C, Wachtel P, (1975) 'Effects on Income of Type of College Attended', *Sociology of Education*, 48:Winter, pp.75-90

Sosdian C B, Sharp L M, (1978) *The External Degree as a Credential: Graduates' Experiences in Employment and Further Study*, National Institute of Education, Washington DC

Spanard J-M A, (1990) 'Beyond Intent: Re-entering College to Complete a Degree', *Review of Educational Research*, 60:3, pp.309-344

Spotlight, (1993) Vol. 16, No. 8, November 15, CPC, Bethlehem, PA

Stanton M, (1988) 'Cooperative Education: Working Towards Your Future, *Occupational Outlook Quarterly,* Autumn, pp.22-29

Stern B, (1992) 'Transcontinental Differences in Continuing Education: the US Perspective, *Industry and Higher Education,* March, pp.24-29

Stern D, Nakata Y, (1991) 'Paid Employment Among US College Students: Trends, Effects and Possible Causes, *Journal of Higher Education,* 62:1, pp.24-43

Stewart D M, (1991) 'Higher Education', in Hornbeck D W and Salamon L M (eds.), *Human Capital and Americas Future: An Economic Strategy for the '90s,* The Johns Hopkins University Press, Baltimore, pp.193-219

Tinto V, (1987) *Leaving College: Rethinking the Causes and Cures of Student Attrition,* University of Chicago Press, Chicago

Trow M A, (1993) 'Federalism in American Higher Education, in Levine A (ed.), *Higher Learning in America 1980-2000,* The Johns Hopkins University Press, Baltimore, pp.39-66

Trow, M A, (1988) 'American Higher Education: Past, Present and Future', in Lapidus G W and Swanson G E (eds.), *Social Welfare and Social Service: USA/USSR,* University of California Press, Berkeley

Trow M A, (1974) 'Problems in the Transition from Elite to Mass Education, Policies for Higher Education', *General report on the Conference on Future Structures of Post-secondary Education,* 1973, OECD, Paris

Tsang M C, (1987) 'The Impact of Underutilization of Education on Productivity: A Case Study on the US Bell Companies', *Economics of Education Review,* 6:3, pp.239-254

Tsang, M C, Levin H M, (1985) 'The Economics of Overeducation', *Economics of Education Review,* 4:2, pp.93-104

US Bureau of the Census, (1992a) 'Current Population Reports', Series P70-32, *What's it Worth? Educational Background and Economic Status: Spring 1990,* US Government Printing Office, Washington DC

US Bureau of the Census, (1992b) 'Current Population Reports', Series P-20, No. 462, *Educational Attainment in the United States: March 1991 and 1990,* US Government Printing Office, Washington DC

US Bureau of the Census, (1987) 'Current Population Reports', Series P-70, No. 11, *What's it Worth? Educational Background and Economic Status: Spring 1984,* US Government Printing Office, Washington DC

US Department of Labor, (1992) 'Bureau of Labor Statistics', *Occupational Projections and Training Data: 1992 Edition*, US Government Printing Office, Washington DC

Verdugo R R, Verdugo N, (1989) 'The Impact of Surplus Schooling on Earnings: Some Additional Findings', *Journal of Human Resources*, 24:4, pp.629-643

Walters P B, (1984) 'Occupational and Labor Market Effects on Secondary and Post-secondary Educational Expansion in the United States: 1922 to 1979', *American Sociological Review*, 49, pp.659-71

Walters P B, (1986) 'Sex and Institutional Differences in Labour Market Effects on the Expansion of Higher Education, 1952-1980', *Sociology of Education*, 59:4, pp.199-211

Webb T, (nd.) *Education and training of high tech professionals: Boston USA*, A report by the Employment and Technology Task Force, NEDO, London

Wiek J L, (1992) 'The Business Leadership Program at Puget Sound, USA: Quality and Opportunity Through Collaboration', *Industry and Higher Education*, June, pp.93-99

Wingspread Group on Higher Education, (1993) *An American Imperative: Higher Expectations for Higher Education*, The Johnson Foundation Inc., Racine, Wisconsin

Wirt J G *et al.*, (1989) 'National Assessment of Vocational Education', *Economics of Education Review*, 8:4, pp.383-392

Witmer D R, (1970) 'Economic Benefits of College Education', *Review of Educational Research*, 40, pp.511-523

Witmer D R, (1980) 'Has the Golden Age of American Higher Education Come to an Abrupt End?', *Journal of Human Resources*, 15:1, pp.113-20

Wolfgang M E, Dowling W D, (1981) 'Differences in Motivation of Adult and Younger Undergraduates', *Journal of Higher Education*, 52:6, pp.640-648

THE US LABOUR MARKET FOR NEW GRADUATES, Court G, Connor H. Report 267, 1994. ISBN 1-85184-192-X

This report assesses the impact of a rapid rise in the supply of graduates on the labour market. The UK higher education system has expanded very rapidly in the past five years and the impact of this increase has yet to be fully assessed. In order to understand the potential longer term effects of growth in graduate output, the Employment Department commissioned this study on the US labour market for new graduates. Rapid rises in US graduate output in the past have taken it towards a mass higher education system. This could provide some insight into the kinds of changes we can expect in the UK.

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